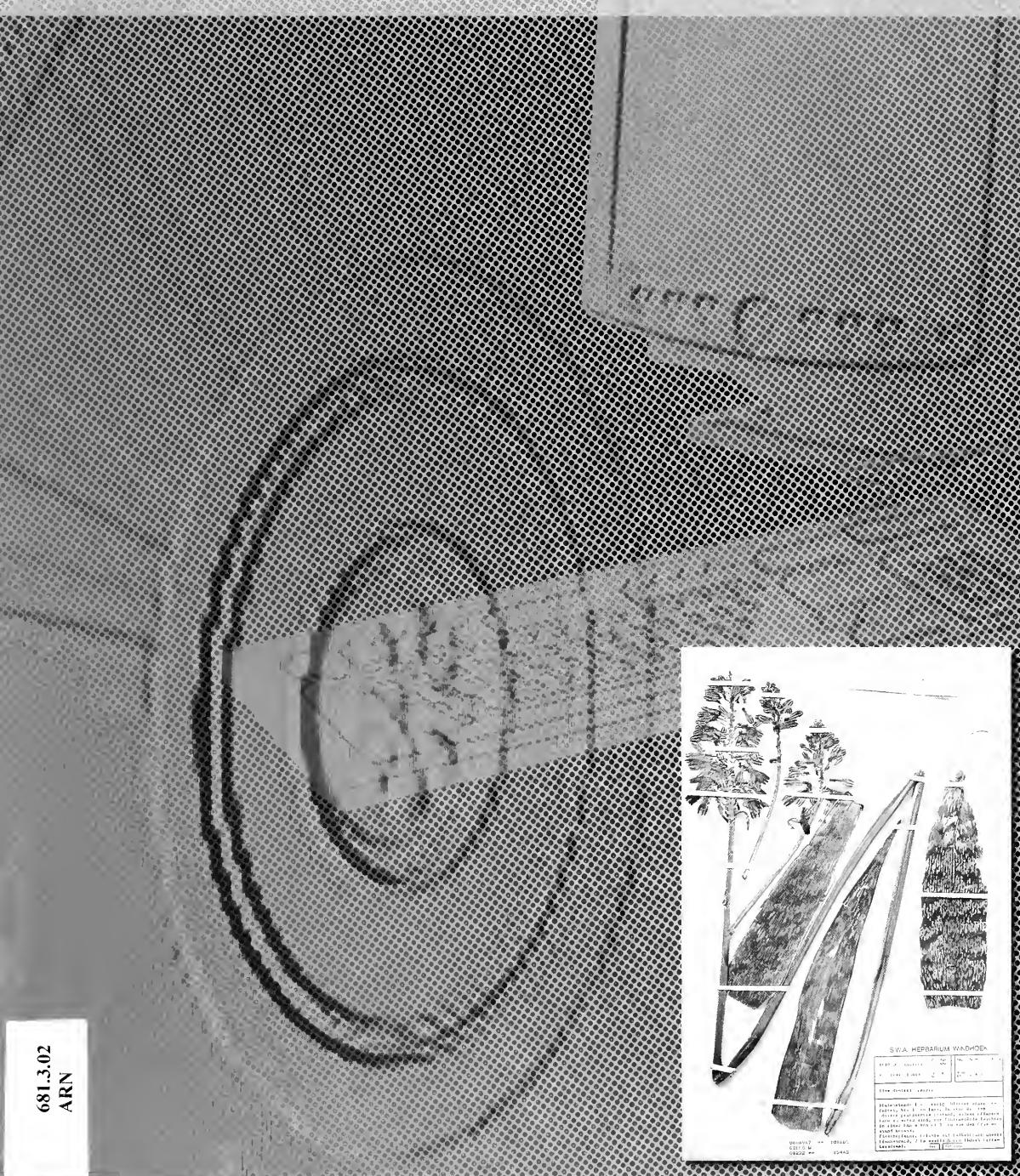


PRECIS.pc

SPECIMEN DATABASE USER GUIDE

Trevor H. Arnold & Hester M. Steyn



Button Functions

Help Buttons



Region Help Button

on the Regions sub-form. Displays a screen explaining the buttons on that form



Locality Keywords Help Button

on the *Locality Keywords* sub-form. Displays a screen explaining the buttons on that form



Duplicate CAS Help Button

on the *Specimen ID* page. Displays a help form with instructions on how to duplicate a record

Form Operation Buttons



Exit Button

Closes the current form or subform and returns to previous form



Clear Form Button

Clears information from all fields on current form

Record Operation Buttons



First Record Button

Displays first record in table



Prior Record Button

Displays prior record in table



Next Record Button

Displays next record in table



Last Record Button

Displays last record in table



Insert Record Button

Insert a new blank record



Delete Record Button

Deletes current record



Edit Record Button

Places record into edit mode, allowing changes to be made



Save Record Button

Saves current record



Undo Button

Returns record to its original state prior to editing



Remember Button

Remembers certain information, which can be inserted in subsequent records



Find Button

Allows you to search for a specific record



Flag Button

Flags all records as having been checked/undergone quality control

Other Operation Buttons



New Collector Button

Allows new collector's name to be added to 'Collectors' table



Insert Collector Button

Insert collector (s) name remembered/saved from within the Specimen Collectors subform



Preview and Print Button

Allows information to be previewed prior to printing



Write To File Button

Writes information to a file



Information Button

Provides definitions of terms on the *Habits* sub-form see Appendix 2



Specimen Count Button

Counts and displays the total number of specimens in the database



Record Set Selection Button

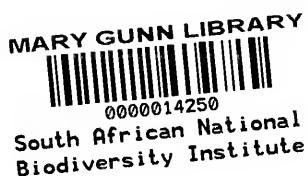
To select a range (subset) of specimens to work with

PRECIS.pc

National Herbarium, Pretoria (PRE)
Computerised Information System

SPECIMEN DATABASE USER GUIDE

Trevor H. Arnold & Hester M. Steyn



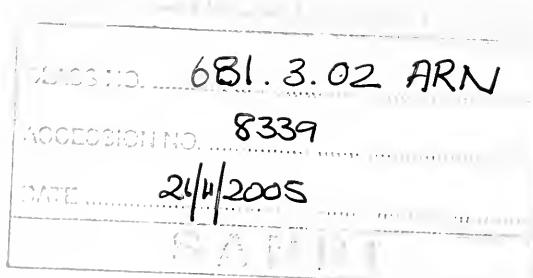
2005

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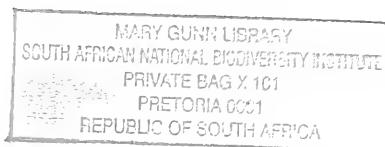
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IUCN
The World Conservation Union



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Introduction

Introduction

The PRECIS.pc Specimen Database is a PC version of the Specimen component of PRECIS (National Herbarium, Pretoria (**PRE**), Computerised Information System). This database is used to store information extracted from herbarium specimen labels, thus maintaining a comprehensive electronic record of the collection in a herbarium. This information is then accessible for manipulation in a variety of ways, such as the generation of labels for new specimens being accessioned into the herbarium.

The Specimen database consists of a discrete front-end database, *SpmnDb.exe*, developed with Delphi. This attaches, via an ODBC driver, to a Specimen database (*SpmnData*), developed with MySQL. Separate data entry routines exist for Existing and New Specimens depending on whether labels are required or not. Data is captured with the aid of data entry forms and sub-forms. The database comprises over 70 tables including 31 primary tables, 16 systems tables and 24 lookup (data dictionary) tables. Where possible, standard lists of variables are housed in the “look-up tables”, which can be expanded by users as required.

Listings (to screen or disk) of grid references for taxa can be created, from which computer-generated distribution maps can be produced using the National Botanical Institute’s (NBI) MAPPIT program. Detailed user-specified reports at the family, genus and taxon levels, or for single collectors, can also be generated. Output constitutes all the information entered for each specimen. Draft or final specimen labels for mounting on specimen sheets may also be printed.

The database can operate as a stand-alone system or as a multi-user network. If more than one stand-alone computer (not networked) is used to capture information, this data can be moved from the secondary computer(s) to the main computer by means of the Import/Export option. An added feature of the Specimen Database system is that specimen records entered by a herbarium can be made available to other herbaria using the same system.

Computer requirements:

Server

- CPU: Pentium 4, 1.8 GHz (minimum requirement)
- RAM: 256 Mb
- IOMEGA 250 Mb/750 Mb ZIP drive or another data backup facility – highly recommended
- Windows: XP (Professional preferred), 2000
- MySQL version 4.0.16 (provided)
- UPS (Uninterrupted Power Supply): highly recommended in areas with electrical fluctuations

PC

- CPU: Pentium 4, 1000 MHz (minimum requirement)
- RAM: 128 Mb
- Windows: 98, XP (Professional preferred), 2000
- MySql ODBC 3.51 driver (provided)

Chapter 1

Installing the MySQL service and specimen database

Installing the MySQL service and specimen database

1.1 First-time installation

Insert installation CD into CD-drive. The auto-run program will be initiated, resulting in the Installation Menu being displayed. See Figure 1 below.

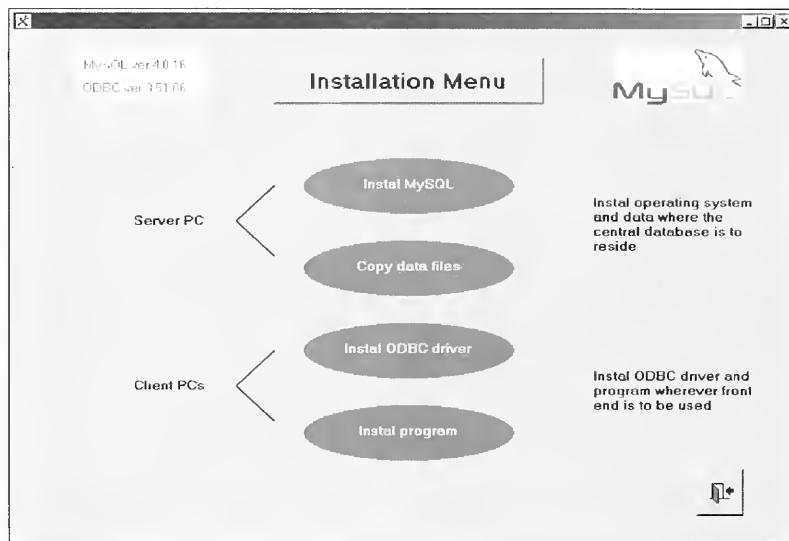


Fig. 1. MySQL software and Specimen database Installation Menu.

The Installation menu includes four installation components, namely:

1. Installation of MySQL operating system
2. Installation of PRECIS Specimen database files
3. Installation of MySQL ODBC driver
4. Installation of Delphi front-end program

Installation of the four components is dependent on how the computers are configured, namely:

Stand-alone PC:

- Install components 1, 2, 3 and 4.

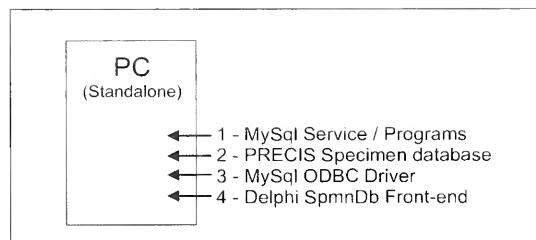


Fig. 2. Stand-alone PC showing four components to be installed.

Peer-to-peer network: (Two or more PCs, with one acting as a Server)

- PC to house the database (Server) – install components 1 and 2
- All PCs used to access the database (may also include PC acting as a Server) – install components 3 and 4

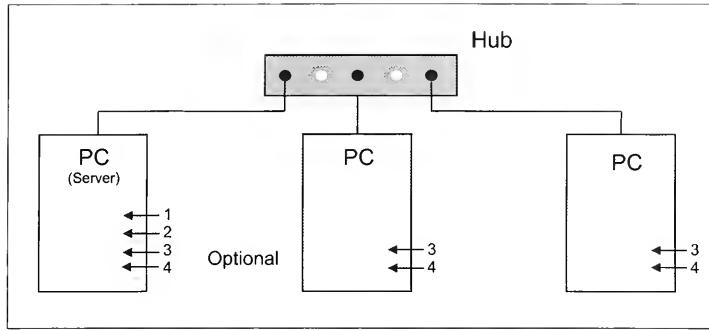


Fig. 3. Peer-to-peer network showing components to be installed on the Server and PCs.

Client / Server network: (Dedicated Server with workstations)

- Server – install components 1 and 2
- All workstations (PCs) used to access the database – install components 3 and 4

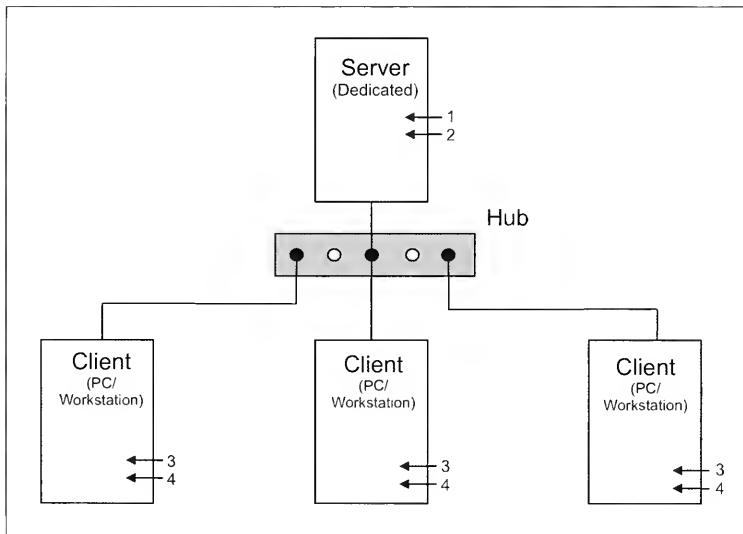


Fig. 4. Client / Server network showing the components to be installed on the Server and PCs.

Installing component I: The MySQL software

At the Installation menu [click] the button "Install MySQL"

— The *MySQL Servers and Clients* installation window will appear



Fig. 5. MySQL Servers and Clients installation window.

- Inside this window will be a smaller “Welcome” window

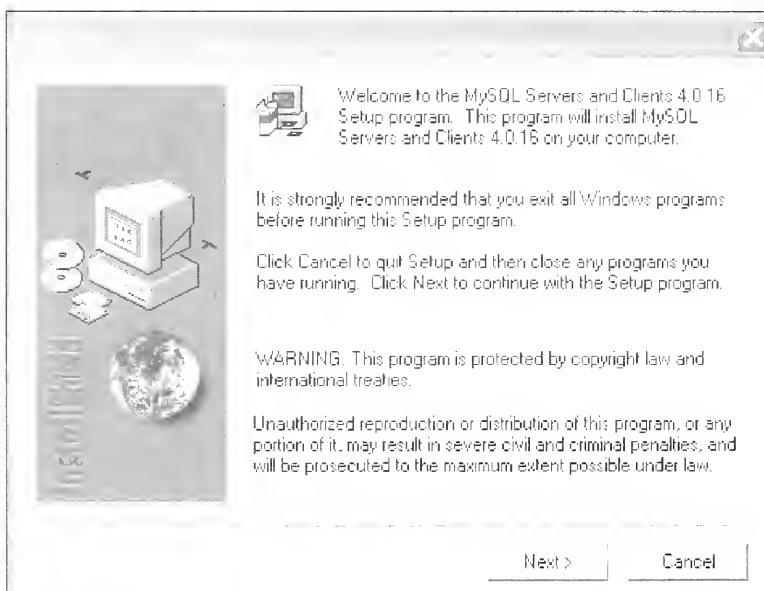


Fig. 6. MySQL Servers and Clients installation “Welcome” window.

- Click [Next]
- This will open the “Information” window

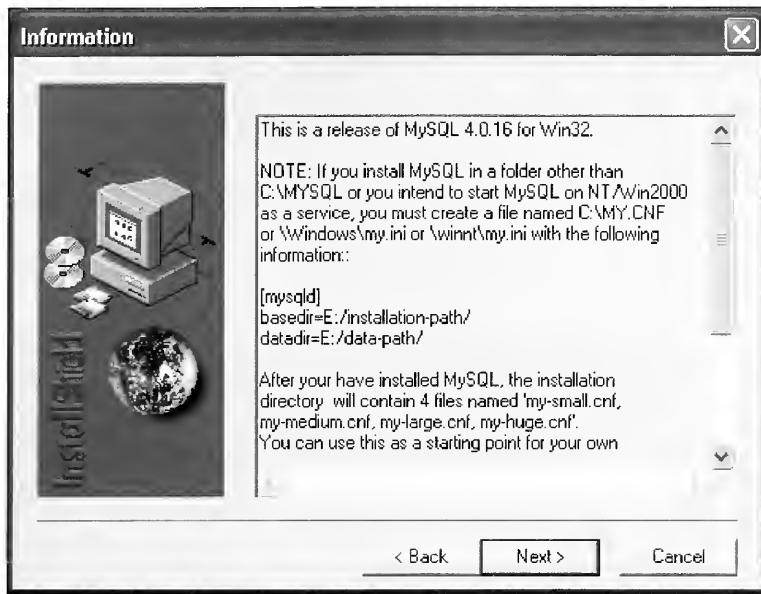


Fig. 7. MySQL Servers and Clients installation “Information” window.

- Click [Next]
 - This will open the “Choose Destination Location” window

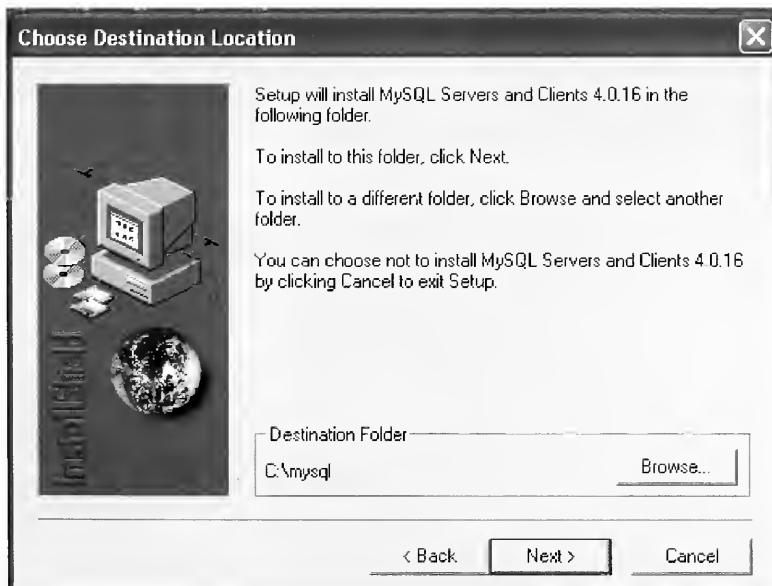


Fig. 8. MySQL Servers and Clients installation “Choose Destination Location” window.

- Accept the default Destination Folder “C:\mysql”
- Click [Next]
- This will open the “Setup Type” window

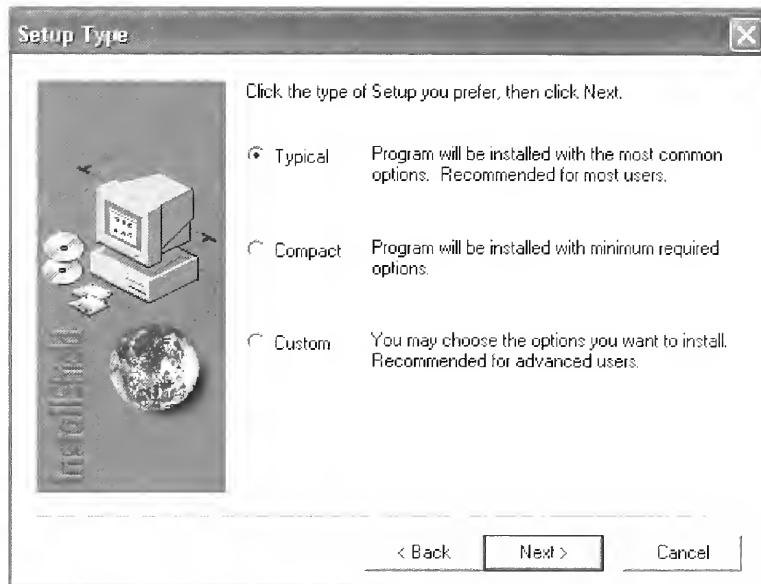


Fig. 9. MySQL Servers and Clients installation “Setup Type” window.

- Accept the default type “Typical”
- Click [Next]
- This will install the MySQL software
- An installation progress bar will be displayed
- The “Setup Complete” window will be displayed

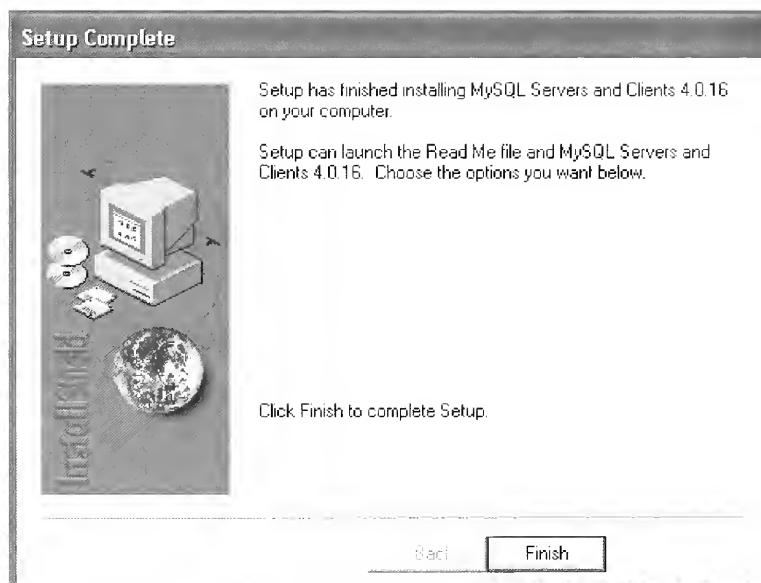


Fig. 10. MySQL Servers and Clients installation “Setup Complete” window.

- Click [Finish] to complete the MySQL installation
- A tick will appear to the right of the “Install MySQL” button

Installing component 2: The data files

At the Installation Menu [Click] the “Copy Data files” button

- This will copy the data files from the CD to the hard drive

Installing component 3: The MySQL ODBC Driver

At the Installation menu [click] the “Install ODBC driver” button

- This will display the “MySQL Connector ODBC” installation window

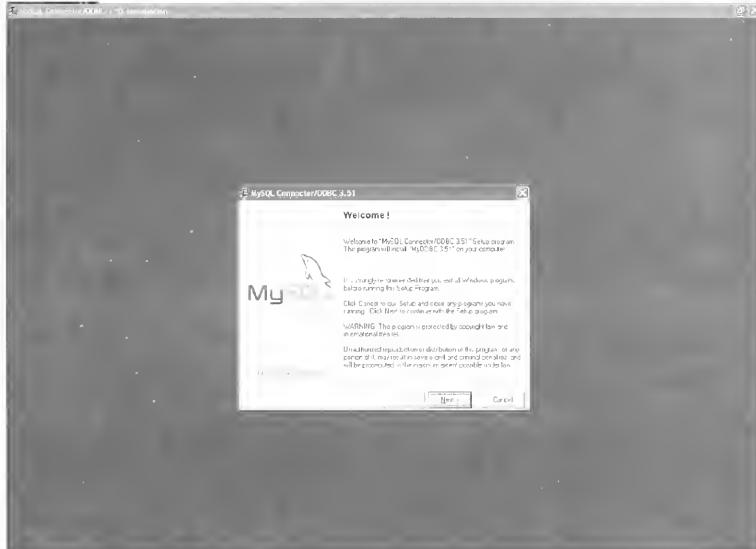


Fig. 11. MySQL Connector/ODBC Driver installation window.

- Inside this window is a smaller “Welcome” window

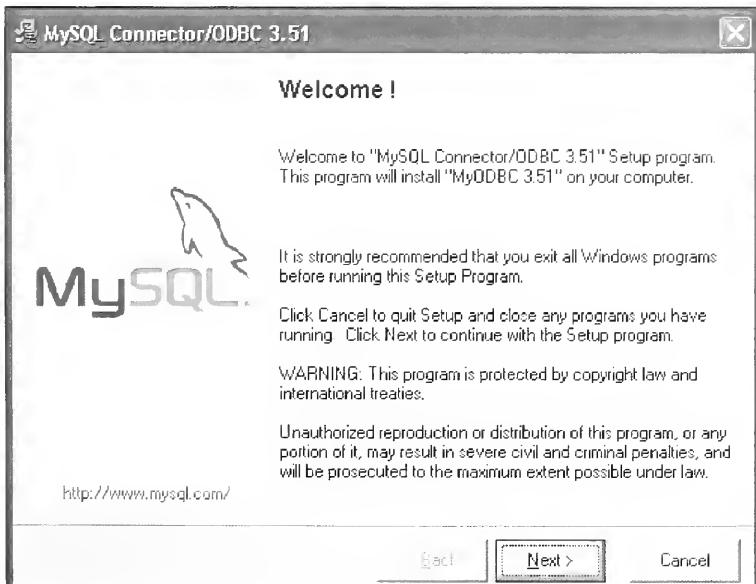


Fig. 12. MySQL Connector/ODBC Driver installation “Welcome” window.

- Click [Next]
- This will open the “Readme” window

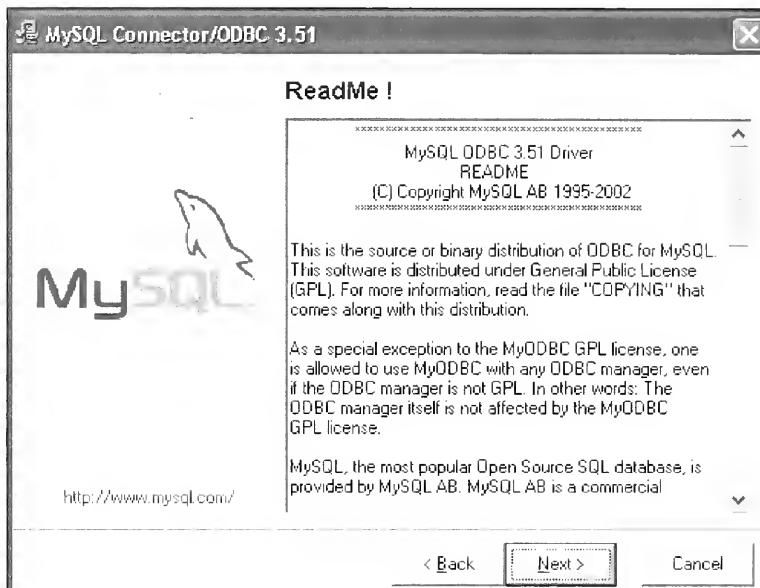


Fig. 13. MySQL Connector/ODBC Driver installation “Readme!” window.

- This provides copyright and license information
- Click [Next]
- This will open the “Start Installation” window

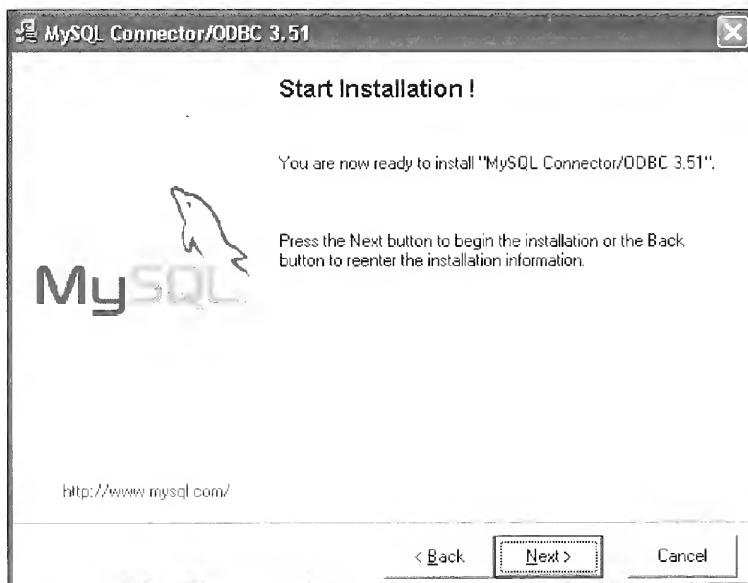


Fig. 14. MySQL Connector/ODBC Driver “Start Installation!” window.

- Click [Next]
- This will open the “Finished!!” window

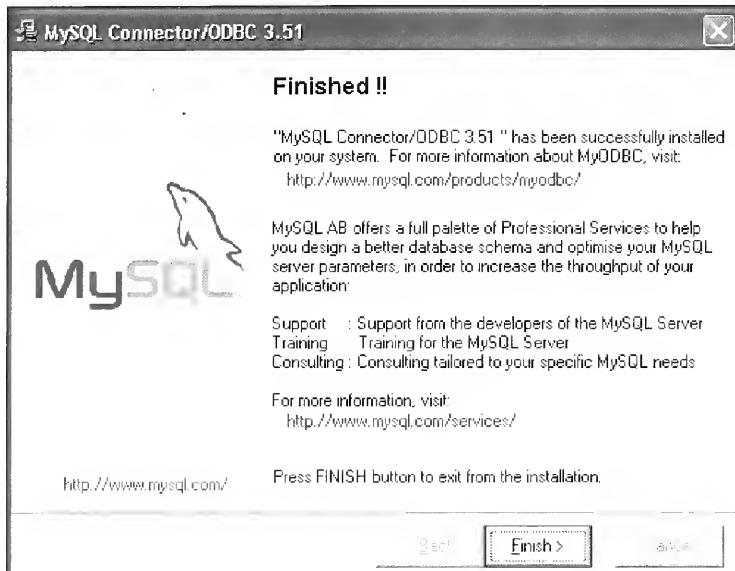


Fig. 15. MySQL Connector/ODBC Driver installation “Finished!!” window.

- Click [Next]
- This will open the “Create ODBC Connection” window

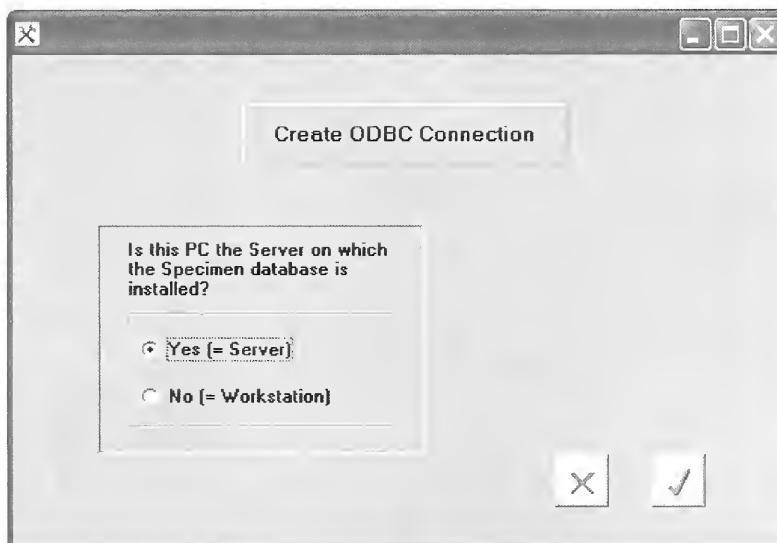


Fig. 16. MySQL Connector/ODBC Driver installation “Create ODBC Connection” window.

Option 1. If the MySQL software and Data Files were loaded onto the current PC: then

- Select “Yes”
- Click the [Tick] button

Option 2. If the MySQL software and Data Files were loaded onto a different PC: then-

- Select “No”

— This will result in two fields appearing within the window

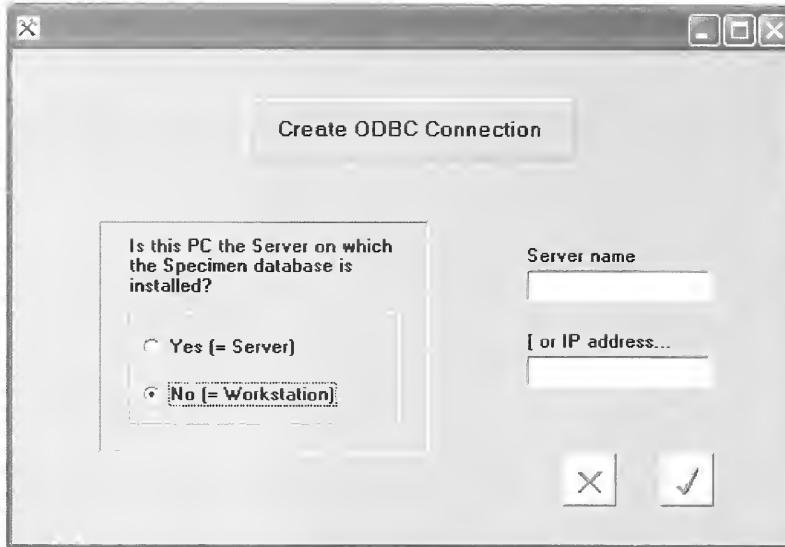


Fig. 17. MySQL Connector/ODBC Driver installation “Create ODBC Connection” window with two additional data entry fields.

Into these two fields enter the following information for the Server – PC

- Computer (Server) “Name” and
- Computer (Server) “IP Address” (if available)
- Click the [Tick] button

Installing component 4: The Delphi front-end program

At the Installation menu [click] the “Install Program” button

- This will display the SpmnDb Delphi front-end installation window



Fig. 18. SpmnDb Delphi front-end installation/setup window.

- Inside this window will be a smaller “Welcome” window

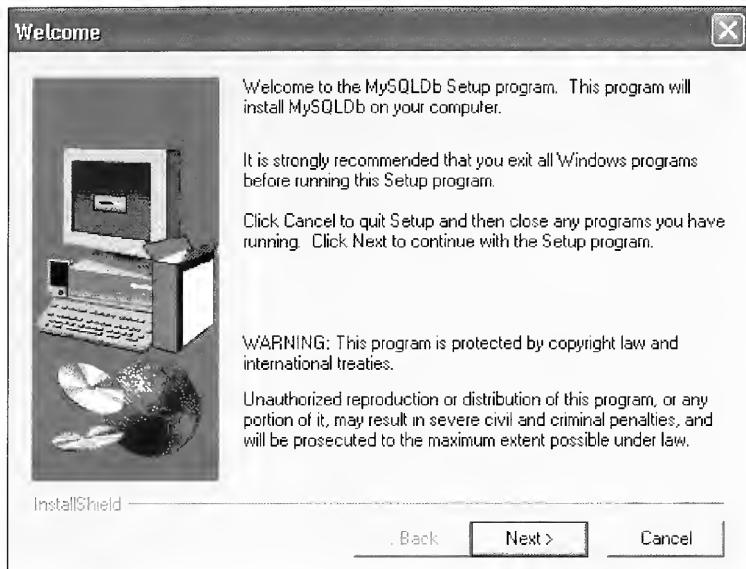


Fig. 19. SpmnDb Delphi front-end installation "Welcome" window.

- Click [Next]
- This will open the "User Information" window

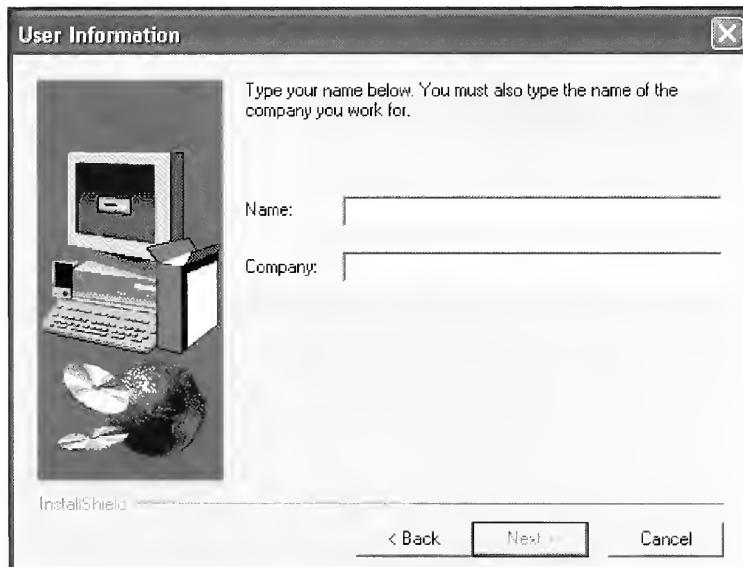


Fig. 20. SpmnDb Delphi front-end installation "User Information" window.

Enter the following information:

- User name and
- Company name
- Click [Next]

- This will open the "Start Copying Files" window

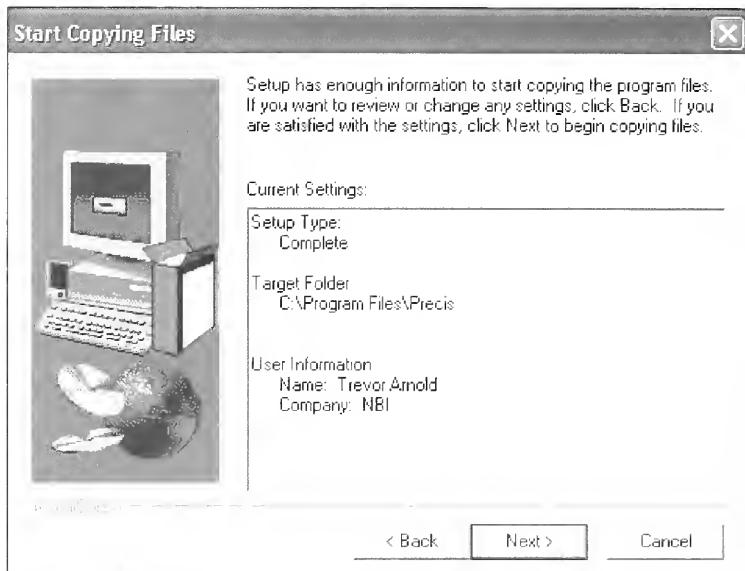


Fig. 21. SpmnDb Delphi front-end installation “Start Copying Files” window.

- Click [Next]
 - A progress bar showing the status of the file copy process will be displayed.
 - When the file transfer is complete, the “Setup Complete” window will appear



Fig. 22. SpmnDb Delphi front-end installation “Setup Complete” window.

- Click [Finish]

If the following message appears



This means that the SpmnDb shortcut link was not installed on the Desktop. You are required to do this manually by making a shortcut of the SpmnDb.exe program, located in the C:\Program Files\Precis folder, and copying it onto the Desktop

1.2 Re-installation after a system crash

Insert installation CD into CD-drive. The auto-run program will be initiated resulting in the Installation Menu being displayed. See Figure 1 above.

1.2.1 Re-installing the system and database program files

These include:

- Component 1 - MySQL System (operating system)
- Component 3 - MySQL ODBC driver and
- Component 4 - Specimen database Front-end program

1.2.2 Re-installing the Specimen database files

Where no backup of the database exists

- Install Component 2. This will either:

install the database files converted from MS-Access by the PRECIS Data Management Unit at the South African National Biodiversity Institute (SANBI/ex NBI.) or will install a new/empty database.

Where a backup of the database exists

- Close down the MySQL Administrator (if running)
- Restore database files to their original folders using the software that was used to make the backup. (e.g. Windows or Iomega backup)

1.3 Creating a Desktop shortcut

Right click on Desktop. Select 'New' and then 'Shortcut'. The 'Create Shortcut' dialogue box will appear. Enter the correct path and file name into the **Command line** field, namely, "C:\Program Files\Precis\SpmnDb.exe".

Note: The path/file name expression must be in quotation marks ("....."). (See Fig. 23).

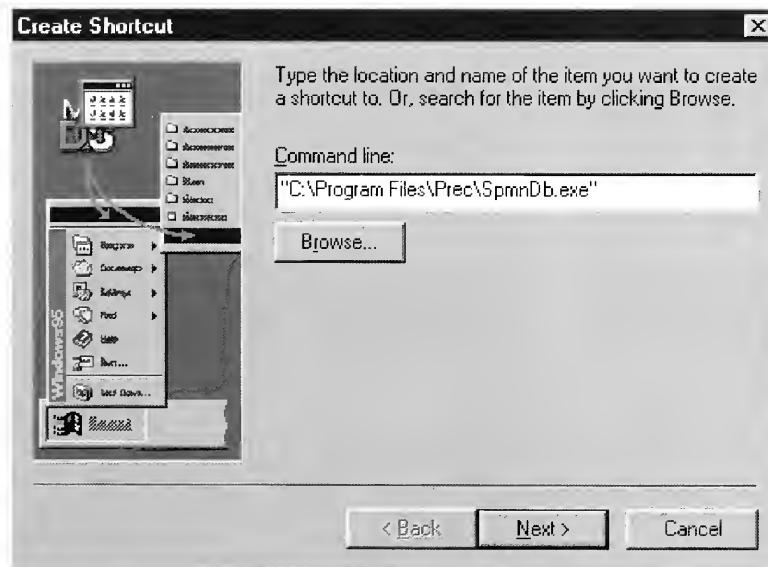


Fig. 23. Create Shortcut dialogue box.

Click on 'Next' to open the 'Select a Title for the Program' dialogue box. (See Fig. 24). Enter the title "Specimen database" in the appropriate field and click 'Finish'.

A shortcut item will be created on the desktop with the  icon.

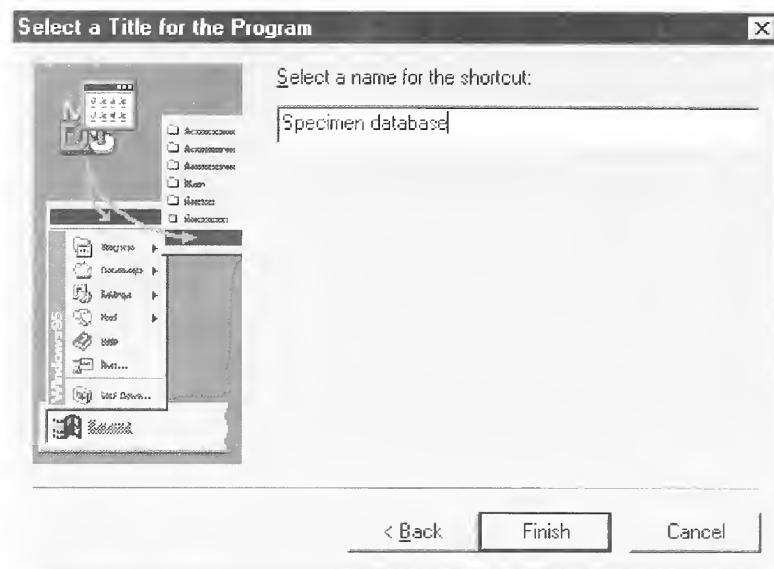


Fig. 24. Select a Title for the Program dialogue box.

1.1 Starting the database for the first time

Click on  on the desktop to start the Specimen Database.

When the newly installed Specimen Database is opened for the first time, three entry prompts appear (Figs. 25, 26 & 27). These prompts request information about the herbarium name, international code, and the highest accession number currently in use. The Standard Kew Herbarium Code prompt (Fig. 25) is displayed first.

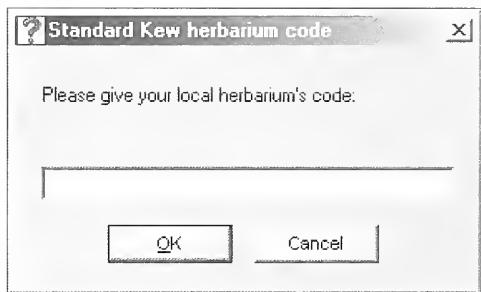


Fig. 25. Standard Kew Herbarium Code prompt.

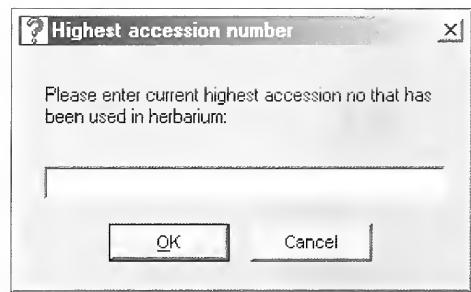


Fig. 26. Highest accession number prompt.

Enter the local herbarium code, as listed in *Index Herbariorum*¹. If the local herbarium is not listed, then enter a six-letter code, followed by a '\$' sign. The '\$' sign indicates a non-international code. The herbarium code serves as the default code for the Computer Accession String (CAS) herbarium component. (See Chapter 4: Existing Specimens, p. 49, for further details). Select 'OK' to display the next prompt (Fig. 26).

¹ Holmgren, P.K. et. al. (1990)

Enter the highest accession number currently in use in the herbarium. Each time a specimen record is added to the database, it is allocated the next available CAS by incrementing the highest accession number component by one. Select 'OK' to store the entered value and display the 'Herbarium label header' prompt (Fig. 27).

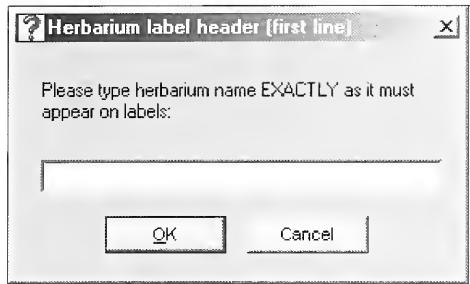


Fig. 27. *Herbarium label header* prompt.

Enter the text string (full herbarium name and code), e.g. NATIONAL HERBARIUM (PRE), that should appear as the label header on the printed specimen labels. Select 'OK' to proceed.

Note: Should a mistake have been made when entering any of the above three parameters, the Update Local Definitions option, selected from the *Updates* menu, can be used to modify the entered values. See Chapter 10: Local Settings, p. #, for additional information. To implement the changes, exit fully and then re-enter the database.

The *Specimen Database* menu (Fig. 28, p. 20) should then appear.

Chapter 2

System Overview

System Overview

The Specimen Database menu is presented in Fig. 28.

Specimen Database

The date and time string displayed at the bottom left corner of the Specimen Database menu screen indicates the version of the database. Each time the database is modified, these values are updated to record the date and time when the changes were completed.

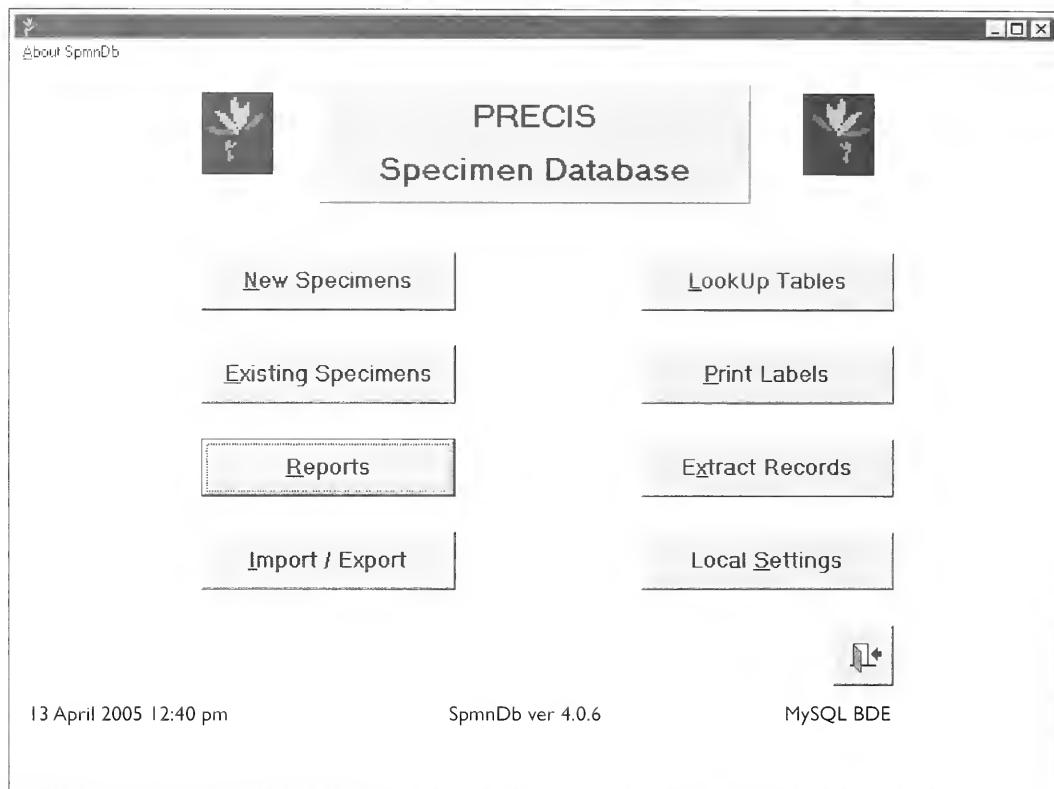


Fig. 28. Specimen Database menu.

1.1 New Specimens

New Specimens

The term 'new specimens' refers to un-mounted specimens that require labels. Accesses the *New Specimens Batch: Header* and *New Specimens* data entry forms used to capture information for batches of new specimens. The information is usually extracted from the collector's hand-written field labels. Batches of specimens or individual specimens may be transferred to the main (existing) specimen table. Once final specimen labels have been printed, the specimen records can be deleted. (See Chapter 3: New Specimens, p. 23).

1.2 Existing Specimens

Existing Specimens

The term 'existing specimens' refers to mounted specimens which have been accessioned (filed) in a herbarium. Accesses the *Specimens* data entry form used to capture information for individual specimens. The information is usually extracted from specimen labels affixed to herbarium sheets. (See Chapter 4: Existing Specimens, p. 49).

2.3 Reports

Reports

Accesses the *Reports* menu. Current report options include routines for printing all available information for selected specimens (e.g. by family, genus or collector), for listing specimens without grid references, and for generating point files for use by the *Mappit*² geographical mapping system. (See Chapter 5: Reports, p. 71)

2.4 Import/Export

Import / Export

Used to import and export batches of new specimens between computers not linked by a network. This allows information for existing specimens to be captured on a second separate computer and moved (exported and then imported) via diskette (stiffy or Zip disk) to the main computer. The information can then be incorporated into the main (existing) Specimen table, where CAS values will be assigned if needed. (See Chapter 6: Import/Export, p. 89)

2.5 Look up Tables

Look Up Tables

Accesses the *Look-Up Tables* menu, from which the lists of variables (e.g. habitats, soil types etc.) contained in these tables can be extended with additional options. Look-Up tables house standardised options, which are accessed from the various database forms and sub-forms, e.g. 'Existing' Specimens, New Specimens, Collectors, Habitats, etc. (See Chapter 7: Look-up Tables, p. 93)

2.6 Print Labels

Print Labels

Accesses the routines for printing labels for new or existing specimens. (See Chapter 8: Print Labels, p. 121)

2.7 Extract Records

Extract Records

Accesses the routines for selecting batches of specimens for transfer (export) to other specimen databases. (See Chapter 9: Extract Records, p. 125).

2.8 Local Settings

Local Settings

Accesses the *Local Settings* menu, which contains a routine for updating (setting) the local definitions e.g. Herbarium name and code and the highest specimen number used. (See Chapter 10: Local Settings, p. 131)

² Arnold and Oliver (1996)

Chapter 3

New Specimens

New Specimens

New Specimens

Accesses the *New Specimens: Batch Header* form (Fig. 29). A new batch record is created, or an existing record accessed, to which specimens are added. Once all specimen records have been added and checked, these are transferred to the main Specimens table, where CAS (Computer Accession String) values are automatically allocated. Final labels can then be printed, and the specimen records deleted. Only after all the specimen records have been deleted can the batch header be deleted. For a schematic diagram of the procedure for capturing new specimen data and printing specimen labels, see Appendix 4, Capturing data and printing labels, p. 153.

New Specimens: Batch Header form

Batch no: 1 Specimens in batch: 63 Date: _____

Typist: Mary Description of batch: Strohbach

Buttons: Add Specimens, Transfer Batch, Transfer One, Print Labels, Delete Specimens

Status: All checked

Record 1 of 217

Fig. 29. *New Specimens: Batch Header* form.

Batch no (Batch number)

To create a new batch, click on **+**. A new batch number is automatically assigned to each additional batch.

Specimens in batch

An automatic counter indicating the number of specimens in the batch.

Date

The current date is automatically inserted when a new batch is created.

Typist

Enter the name or initials of the person creating the batch record and capturing the specimen data.

Description of batch

Enter a general description of the specimen collection, e.g. collector's name, locality/area where collected, date of collection.

3.1 Add Specimens

Add Specimens

Accesses the New Specimens data entry forms/pages (see 3.1, p. 26), used to capture specimen information for specimens within selected batches.

3.2 Transfer Batch

Transfer Batch

Accesses the data transfer (copy) routine (see 3.2, p. 48), used to copy specimen information for an entire batch to the main (existing) Specimens table.

3.3 Transfer One

Transfer One

Accesses the data transfer (copy) routine (see 3.3, p. 48), used to copy information for individual specimens in a batch to the main (existing) Specimens table.

3.4 Print Labels

Print Labels

Accesses the Print Labels routine (see 3.4, p. 48), used to print draft or final specimen labels.

3.5 Delete Specimens

Delete Specimens

Accesses the Delete Specimens routine (see 3.5, p. 48), used to delete all specimen records from specified batches in the NewSpmns (New Specimens) table.



Flags all records as having been checked for correctness.



Click on to return to the *Specimen Database* menu.

3.1 Add Specimens

Add Specimens	Accesses the New Specimens data entry forms and associated pages, for the addition of specimens to the batch.
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3.1.1 New Specimens: Specimen ID page

The screenshot shows the 'NEW SPECIMENS' data entry form. At the top, there are buttons for 'Batch' (1), 'Item' (1), 'Ext Sheet' (0), 'CAS herb' (WIND), and 'CAS no' (74753). The main area is titled 'NEW SPECIMENS'. It contains several input fields and buttons:

- Specimen ID:** Double-click ITEM NO above for next item no. Buttons: 'Copy to next sheet'.
- Collector(s):** Donated by: Herbarium Number. Buttons: 'Search for Herbarium'.
- Locality:** Duplicate of CAS: Herbarium Number Ext Sheet. Buttons: 'Enter CAS no to be duplicated', 'Copy to duplicate record', 'Find coll/no to duplicate'.
- Habitat:** (empty)
- Description:** (empty)
- Other:** (empty)
- Material:** Herbarium voucher. (dropdown menu)
- Family:** SCROPHULARIACEAE. (dropdown menu)
- Genus:** Colpias. (dropdown menu)
- Species:** mollis E Mey. ex Benth. (dropdown menu)
- ID level:** (dropdown menu)
- Temporary name:** (dropdown menu)
- Det:** (dropdown menu) (selected value: Hsteyn)
- MM YYYY:** (MM: 8, YYYY: 2003)
- Navigation:** A series of icons for navigating through the form, including arrows for moving between fields and a magnifying glass for search.

Fig. 30. New Specimens data entry form: Specimen ID page.

Temporary Accession String (TAS)

A unique four-part string assigned to each specimen in a batch. It comprises the batch and item numbers, extension, and sheet number.

Batch

This number is automatically carried over from the New Specimens: Batch Header form.

Item

Each specimen in the batch is automatically allocated a unique item number. Click on to clear the screen, enter a new record and allocate the next item number.

Extension (Ext)

Used when multiple collections are mounted on a single herbarium sheet. These are different collections by a single or various collector(s). Enter 'A' for the first collection, 'B' for the second, and so on. If the letter is entered in lower case, it will automatically be converted to upper case.

Sheet

Indicates the sheet number when the collection has been split over several sheets.

Copy to next sheet

Copies information from the current record to a new record for the next sheet. If the original sheet number is 0, this is incremented to 1 and the new sheet is given a sheet number of 2. After clicking on this button, the confirm copy prompt, 'Copy record to Sheet 2?/3?/4? Y/N' appears. Type 'Y' (Yes) to copy the sheet, or 'N' (No) to cancel.

Note: The**Copy to next sheet**

button should only be used once all the information for the current sheet has been entered and saved. If subsequent sheets are required, these should be copied from the sheet with the highest sheet number, i.e. sheet 1 copied from sheet 0, sheet 2 copied from sheet 1, etc.

Donated by

Details of the herbarium by which the specimen was donated.

Herbarium

Enter the herbarium code of the donating herbarium, as listed in *Index Herbariorum*. If the code is not known, see 'Search for Herbarium' below.

Note: Wherever possible, the original or primary donor of the specimen should be recorded, and not subsequent donor(s).

Search for Herbarium

Used to find a herbarium code. The search prompt 'Enter search string and click GO button' appears. Enter the first 3-4 letters of the herbarium name (or any other search string, e.g. the town or country name) and select 'GO'. A list of herbaria containing the entered string appears. Click on the line containing the relevant herbarium entry. The herbarium code is inserted into the Herbarium Selection field.

Click on  to store the herbarium code. Click on  to close the sub-form. Then double click in the **Donated by: Herbarium** field to insert the herbarium code.

Note: If the required herbarium is not listed, a new herbarium record will have to be added to the 'Herbaria' table. See Chapter 7 (p. 105).

Number

If available, enter the herbarium accession number of the donated specimen. If the herbarium has been computerised, the computer accession number should take precedence over other numbers.

To clear information from the **Herbarium** and **Number** fields, click the  button to the right of **Number** field.

Duplicate of CAS (Computer Accession String)

This process is used to duplicate a specimen record received from another herbarium and assign it a local CAS value. This alleviates having to re-capture specimen data that already exists electronically, having been previously captured by another herbarium. An example would be the donation to your herbarium (e.g. NH) of electronic data from another herbarium (e.g. PRE) of specimens for which there are duplicate specimens in your herbarium. After adding the donated electronic records into your database, this function allows these to be duplicated and assigned a local 'NH' herbarium CAS values.

To copy an existing record after a new (empty) record has been inserted together with its unique CAS value:

1. If the CAS of the record to be duplicated is known, enter the CAS and click on **Copy to duplicate record** to copy the information into the new empty record.
2. If the CAS of the record to be duplicated is not known, click on **Find coll/no to duplicate** and enter the collector's name at the prompt, followed, if known, by the collector's number. This accesses all specimen records in the Specimens table that are associated with the entered collector's name (and number). If several records are located (e.g. entering White 123 may locate White, K. and White, S. with collector's number 123), use the record navigation buttons at the bottom of the screen to find the required record.

Click on  to remember the CAS value, and then click on  to return to the *New Specimens* data entry form. Double click in the **Duplicate of CAS: number** field to insert the CAS number, and then click on **Copy to duplicate record** to copy the information into the new empty record.

To clear information from **Duplicate of CAS** fields, click the  button to the right of the **Sheet** field.

Note: Before duplicating a record, ensure a) that a new record has been created by clicking  and b) that the record has an appropriate CAS.

Material

Used to indicate the kind of material being encoded. The default value is 'Herbarium specimen'. Click on the down arrow to the right of the **Material** field to display a list of options. Click on the required option to insert it into the **Material** field.

Note: If the required material type is not listed, a new material type record will have to be added to the 'Materials' table. See Chapter 7 (p. 108).

Family

A display field only that automatically indicates the family name once the genus name has been entered.

Note: To add a new family to the 'Families' table, see Chapter 7 (p. 101).

Genus

To enter the genus name, either click in the **Genus** field or on the associated down arrow. Enter the first 3-4 letters of the genus name. An alphabetical list of genera will appear and the first genus starting with the letters entered, will be highlighted. If the required genus name is not immediately visible, use the scroll bar to search for the name. Click on the required name to insert it into the **Genus** field.

Note: If the required genus is not listed, a new genus record will have to be added to the 'Genera' table. See Chapter 7 (p. 102).

Species

To enter the taxon name (species or infraspecific name), click on the down arrow at the right end of the **Species** field. An alphabetical list of taxa in the selected genus will appear. If necessary, use the scroll bar to find the appropriate taxon. Click on the required name to insert it into the

Species field. If the selected name has been placed into synonymy (indicated by a '=' after the name), a dialogue box offering a choice between an alternative name in current use and the name selected will appear. This will only appear after the cursor has been moved to a new field. Select 'Yes' to insert the new name offered, and 'No' to insert the name originally selected.

Note:

1. If the required taxon is not listed, a new taxon record will have to be added to the 'Species' table. See Chapter 7 (p. 114).
2. If the specimen has only been identified to the species level, do not add the species name as a new record in the Species table. Use the ID level below to truncate the name to display only the species component.

To clear information from the **Genus** and **Species** fields, click the  button to the right of the **Species** field.

ID level

Used to indicate the level of accuracy of the taxon name identification. Click on the arrow to the right of the **ID level** field to display the following list of options :

- **aff.** (affinis) - closely related to the selected taxon, but does not match it exactly.
- **cf.** (confer) - compare with the selected taxon, to which it is similar but does not match exactly. This option indicates a lesser degree of similarity than aff.
- **indet.** (inderterminavit) - the taxon could not be identified.
- **to species level only** - the taxon could not be identified to the infraspecific level. This will result in only the specific epithet being displayed in the **Species** field. See **Note** below.
- **to subspecies level only** - the taxon could not be identified to the varietal level. This will result in only the specific and subspecific epithets being displayed in the **Species** field. See **Note** below.

Click on the required option to insert it into the **ID level** field.

Note: When a specimen has been identified to the species or subspecific level only, select any of the available infraspecific taxa (preferably the autonym). Selecting the ID level 'to species level only' or 'to subspecies level only' removes the unwanted infraspecific component of the name, leaving only the part of the name required displayed.

Temporary name

Used to record the personalised taxon name or description assigned to the plant by the collector.

Determinavit (Det)

Used to record the name of the person who identified the plant.

Month (MM) Year (YYYY)

The month and year in which the determination was made.

CAS herbarium (herb)

This value is automatically inserted when the specimen is transferred to the main (Existing Specimens) table. Specimens can only be transferred after the final labels have been printed and the **Labels done** field has been flagged 'Y' (Yes).

CAS number

This value is automatically inserted when the specimen is transferred to the main (Existing Specimens) table. Specimens can only be transferred after the final labels have been printed and the **Labels done** field has been flagged 'Y' (Yes).

3.1.2 New Specimen: Collector(s) page

Batch Item Ext Sheet 1 0

NEW SPECIMENS

CAS herb WIND CAS no 74753

Specimen ID	Collector(s)	Locality	Habitat	Description	Other
-------------	--------------	----------	---------	-------------	-------

Collector(s)
Steyn, H.M.S.

Collector's specimen no 124 **Change specimen no**

Date collected DD MM YYYY
3 8 2000

Collectors:

Navigation:

Record 1 of 7

Fig. 31. New Specimens data entry form: Collector(s) page.

Collector's specimen no

Enter the number assigned to the specimen by the collector.

Use the **Change spmn no** button to change the specimen number after the record has been saved.

Date collected (DD) x Month (MM) / Year (YYYY)

Enter the date (day, month and year) on which the specimen was collected.

Collectors: Accesses the *Collectors* sub-form, used to record the collector's name(s) (Fig. 32).

Fig. 32. Collectors sub-form.

New Specimens: Collectors sub-form

Temporary Accession String (TAS)

These values (Batch number, Item number, Extension, Sheet number) are automatically inserted when a new record is created by clicking on 

Ex

Enter "Ex" in this field where the second collector was responsible for collecting the plant material and providing the site information, but did not prepare the specimen or assign a collector's number to it, this having been done by the first collector. For example, Meddley-Wood, curator of the Natal Herbarium, often prepared specimens from material brought in for identification by members of the public.

Collector

Click on the **Collector** field or the associated down arrow. Enter the first 3-4 letters of the collector's name. An alphabetical list of collectors' surnames will appear and the first surname starting with the letters entered, will be highlighted. If the collector's name is not immediately visible, use the scroll bar to find the required surname and initials. Click on the name to insert it into the **Collector** field.

Note: If a collector's name is not listed, a new record will have to be added to the 'Collectors' table. This can be done via the New Collector button  or see Chapter 7 (p. 97).

Order

Indicates the order to be followed when printing the names of multiple collectors on the specimen label. The first collector is automatically assigned a default order value of 1. For each subsequent collector, the value in the **Order** field is automatically incremented by one. Click on  to clear the **Collector** field, and increment the order value by one. Repeat these steps for all additional collectors.

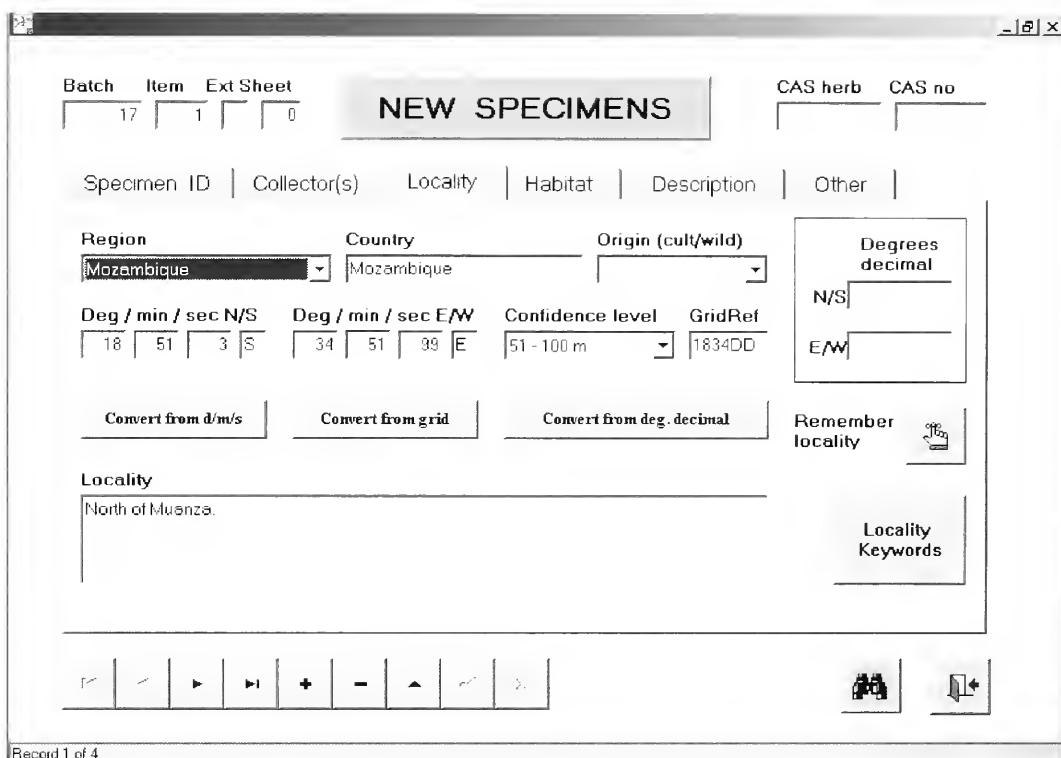
To enter the name of an additional collector not represented in the list of collectors, click on  or follow the procedures explained in Chapter 7 (p. 97).

To remember the collector's name(s) for use in subsequent records, click on . This will store the collector's name in memory.

Click on  to return to the *New Specimens* data entry page. The collector(s) entered on the *Collectors* sub-form will automatically be displayed on the *New Specimens* data entry form: *Collectors* page.

To recall the collector's name(s) stored in memory for insertion in a subsequent specimen record click on .

3.1.3 New Specimens: Locality page



The screenshot shows the 'NEW SPECIMENS' data entry form. At the top, there are fields for 'Batch' (17), 'Item' (1), 'Ext Sheet' (0), and 'CAS herb' and 'CAS no'. The main area is titled 'NEW SPECIMENS'. It has a grid for entering specimen data:

Specimen ID	Collector(s)	Locality	Habitat	Description	Other	
Region	Country	Origin (cult/wild)	<input type="button" value="Degrees decimal"/> <input type="button" value="N/S"/> <input type="button" value="E/W"/>			
Mozambique	Mozambique		Deg / min / sec N/S 18 51 3 S	Deg / min / sec E/W 34 51 99 E	Confidence level 51 - 100 m	GridRef 1834DD
<input type="button" value="Convert from d/m/s"/> <input type="button" value="Convert from grid"/> <input type="button" value="Convert from deg. decimal"/>		<input type="checkbox" value="Remember locality"/> <input type="button" value="Locality Keywords"/>				
Locality <input type="text" value="North of Muanza."/>						<input type="button" value="Back"/> <input type="button" value="Next"/> <input type="button" value="First"/> <input type="button" value="Last"/>

At the bottom, it says 'Record 1 of 4'.

Fig. 33. New Specimens data entry form: Locality page

Region (country, province, etc.)

Enter the first 3-4 letters of the region. Click on the down arrow to the right of the field to list all regions starting with the entered search string. An alphabetical list of regions will appear and the first region starting with the letters entered, will be highlighted. Click on the required region name to insert it into the **Region** field.

Note: If the required region is not listed, a new region record will have to be added to the 'Regions' table. See Chapter 7 (p. 111).

Country

A display field that automatically indicates the country corresponding to the entered region.

Origin (Cultivated/Wild)

Records the original source of the specimen, e.g. collected from the wild, cultivated from material collected from the wild, etc. Click on the down arrow to the right of this field to display a list of options. Click on the appropriate option to insert it into the **Origin** field.

Deg / min / sec / N/S

Enter the latitude of the specimen locality (in degrees, minutes and seconds), if available.

Deg / min / sec / E/W

Enter the longitude of the specimen locality (in degrees, minutes and seconds), if available.

The default quadrants are south (S) and east (E), but these may be changed to north and west if required.

Confidence level

Quantifies the degree of accuracy of the longitude and latitude reading. Click on the down arrow to the right of the field to access a list of options. Click on the required confidence level to insert it into the **Confidence level** field.

Grid reference (GridRef)

The quarter degree grid reference should be inserted only after the longitude and latitude values have been entered. This can be done manually or by clicking on **Convert from d/m/s**. In situations where only the quarter degree grid value is provided, the conversion to Degrees, Minutes and Seconds can be done by clicking on **Convert from grid**.

Degrees decimal

N/S and E/W

Enter the decimal value for latitude (N/S) and longitude (E/W). To convert the degrees decimal values to Degrees, Minutes and Seconds and quarter degree, click on **Convert from deg. decimal**. Two formats of decimalization are accepted; (1) decimalization of degrees e.g. 36.1492 and (2) decimalization of minutes e.g. 36.41.271.

Locality

Enter the collection locality of the specimen, ordered from major to minor and precise locality. Include habitat data when this is necessary to pinpoint the exact collection site. e.g. Underberg district, southern Drakensberg, Loteni Nature Reserve, seepage areas on south-facing slopes.

Note: The same locality could represent a major, minor or precise locality, depending on the locality details provided; e.g. for the locality **Pinetown**:

1. **Pinetown** (precise) [poor quality collecting information]
2. Durban district (major), **Pinetown** (minor), Paradise Valley Nature Reserve (precise)
3. **Pinetown** (major), Paradise Valley Nature Reserve (minor), eastern boundary of reserve, along stream bank (precise)



Used to store selected locality data in memory, namely, degrees, minutes and seconds, grid reference degrees decimal and locality values for use in subsequent records.

- Double clicking on the first line of the **Locality** field of a new record duplicates the stored locality information in the appropriate fields.
- Double clicking on the **Degrees N/S** field recalls only the degrees, minutes and seconds and grid reference information.

**Locality
Keywords**

Used to access the *Locality Keywords* sub-form (Fig. 34). This sub-form is used to enter locality keywords from the specimen locality data. These keywords facilitate rapid searches when querying the database.

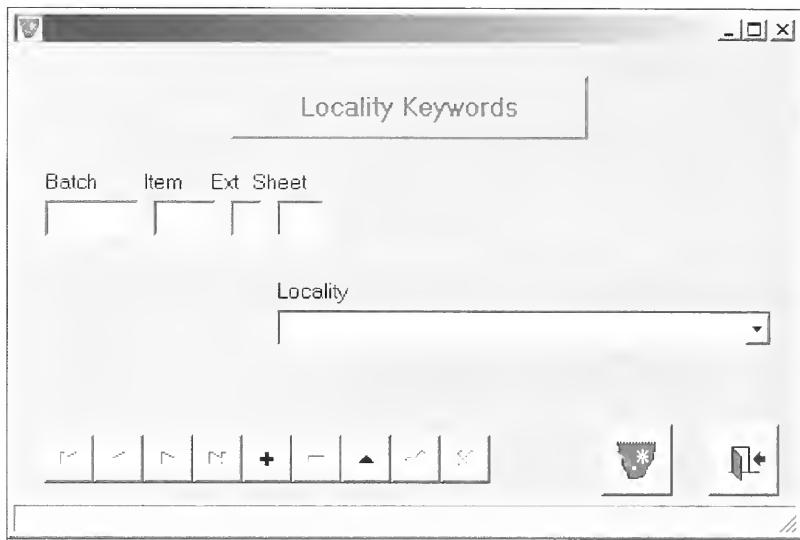


Fig. 34. Locality Keywords sub-form.

New Specimens: Locality Keywords sub-form

Temporary Accession String

These values (Batch number, Item number, Extension, Sheet number) are automatically inserted when a new record is created by clicking on 

Locality

To insert a locality keyword, click in the **Locality** field. Enter the first 3-4 letters of the locality name. An alphabetical list of localities will appear and the first locality starting with the letters entered, will be highlighted. If the required locality is not immediately visible, use the scroll bar to search for it. Click on the name to insert it into the **Locality** field. After entering the first record, click on  to create a new record if multiple locality keyword entries are required.

Note: If the locality name is not listed it will have to be added to the 'Localities' table. See below.



Accesses the *Locality Keywords* sub-form, used to add new locality keywords to the 'Localities' table. See Chapter 7 (p. 107) for entering a new locality keyword.

Click on  to return to the *New Specimens* data entry form.

3.1.4 New Specimens: Habitat page

The screenshot shows a software interface for entering new specimen data. At the top, there are buttons for 'Batch' (17), 'Item' (1), 'Ext Sheet' (0), and 'NEW SPECIMENS'. To the right are buttons for 'CAS herb' and 'CAS no'. Below these are fields for 'Specimen ID', 'Collector(s)', 'Locality', 'Habitat', 'Description', and 'Other'. A horizontal line separates these from a group of dropdowns: 'Altitude', 'Ft/m' (with a down arrow), 'Confidence level' (with 'Unknown' selected), 'Aspect' (with a down arrow), 'Salinity' (with 'Parts per million' and a down arrow), and a 'Habitats' button. Another horizontal line separates this from a grid of environmental factors: 'Substrate', 'Vegetation', 'Soil', 'Biotic effect', 'Lithology', 'Exposure', 'Moisture', and 'Occurrence'. At the bottom are navigation icons (back, forward, search, etc.) and a 'Record 1 of 4' status bar.

Fig. 35. New Specimens data entry form: *Habitat* page.

Altitude

Enter the altitude at which the specimen was collected. If a range of altitudes is given, for example 200-400 m, enter the midpoint value (300 m). The level of confidence is then recorded as 100 m by selecting the '51-100 m' option.

Feet/meters (Ft/m)

Click on the down arrow to the right of the **Ft/m** field to list the available altitude unit options, or simply enter 'ft' or 'm'. Click on the required unit to insert it into the **Ft/m** field.

Confidence level

Quantifies the degree of accuracy of the altitude reading. Click on the down arrow to the right of this field to access a list of options. Click on the required option to insert it into the **Confidence level** field.

Aspect

Click on the down arrow to the right of the field to display a list of aspect options. Click on the required option to insert it into the **Aspect** field.

Salinity

Salinity value in parts per thousand (‰)

Habitats

Accesses the *Habitats* sub-form (Fig. 36), which is used to record macro- and micro-habitats within which the specimen was recorded growing.

Fig. 36. *Habitats* sub-form.

New Specimens: Habitats sub-form

Temporary Association Buttons

These values (Batch number, Item number, Extension, Sheet number) are automatically inserted when a new record is created by clicking on 

Habitat

Click on the down arrow to the right of this field for an alphabetical list of habitat options. The list contains both macro-habitats (e.g. hilltop) and micro-habitats (e.g. pan/depression). Click on the required option to insert it into the **Habitat** field. After entering and saving the first record, click on  to create a new record if multiple habitat entries are required.

Note: If the required habitat is not listed, a new habitat record will have to be added to the 'Habitats' table. See Chapter 7 (p. 104).

Click on  to return to the *New Specimens* data entry form.

Substrate

Click on the down arrow to the right of the field for an alphabetical list of substrate types. Click on the required option to insert it into the **Substrate** field. See also Complex habitat information (p. 42).

Note: If the required substrate is not listed, a new substrate record will have to be added to the 'Substrate' table. See Chapter 7 (p. 117).

Soil

Click on the down arrow to the right of the field for an alphabetical list of soil types. Click on the required option to insert it into the **Soil** field. See also Complex habitat information (p. 42).

Note: If the required soil type is not listed, a new soil record will have to be added to the 'Soil Types' table. See Chapter 7 (p. 112).

Lithology

Click on the down arrow to the right of the field for an alphabetical list of lithology types. Click on the required option to insert it into the **Lithology** field. See also Complex habitat information (p. 42).

Note: If the required lithology is not listed, a new lithology record will have to be added to the 'Lithology' table. See Chapter 7 (p. 106).

Moisture

Click on the down arrow to the right of the field for an alphabetical list of moisture regimes. Click on the required option to insert it into the **Moisture** field. See also Complex habitat information (p. 42).

Note: If the required moisture regime is not listed, a new moisture regime record will have to be added to the 'Moistures' table. See Chapter 7 (p. 109).

Vegetation

Click on the down arrow to the right of the field for an alphabetical list of vegetation types. Click on the required option to insert it into the **Vegetation** field. See also Complex habitat information (p. 42).

Note: If the required vegetation type is not listed, a new vegetation type record will have to be added to the 'Vegetation Types' table. See Chapter 7 (p. 119).

Biotic effect

Click on the down arrow to the right of the field for an alphabetical list of biotic effects. Click on the required option to insert it into the **Biotic effect** field. See also Complex habitat information (p. 42).

Note: If the required biotic effect is not listed, a new biotic effect record will have to be added to the 'Biotics' table. See Chapter 7 (p. 96).

Exposure

Click on the down arrow to the right of the field for an alphabetical list of exposure types. Click on the required option to insert it into the **Exposure** field. See also Complex habitat information (p. 42).

Note: If the required exposure type is not listed, a new exposure type record will have to be added to the 'Exposure' table. See Chapter 7 (p. 100).

Occurrence

Click on the down arrow to the right of the field for an alphabetical list of occurrence types. Click on the required option to insert it into the **Occurrence** field. See also Complex habitat information (p. 42).

Note: If the required occurrence is not listed, a new occurrence record will have to be added to the 'Occurrence' table. See Chapter 7 (p. 110).

4.1.5 New Specimens: Description page

Batch	Item	Ext Sheet	NEW SPECIMENS				CAS herb	CAS no	
17	1	0							
Specimen ID	Collector(s)	Locality	Habitat	Description	Other				
Plant height	Unit	Presence / maturity:				<input type="button" value="i"/>	<input type="button" value="Growth Forms"/>		
		Flowers					<input type="button" value="Flower Colours"/>		
		Fruits					<input type="button" value="Fruit Colours"/>		
		Seeds							
Notes									
Flat area with open forest and pale sand									
Morphol	Ecol	Occr	Comm name	Util	Toxicity	Repro biol	Hort	Aroma	Undesirability
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="button" value="<"/>	<input type="button" value=">"/>	<input type="button" value=">>"/>	<input type="button" value="+"/>	<input type="button" value="-"/>	<input type="button" value="▲"/>	<input type="button" value="▼"/>	<input type="button" value="?"/>	<input type="button" value="?"/>	<input type="button" value="?"/>

Fig. 37. New Specimens data entry form: Description page.

Enter the plant height recorded by the collector, or the measured height of the specimen on the sheet, provided the specimen is entire. If there are multiple specimens, enter the value of the tallest plant into the **Plant height** field, and include the range of heights in the **Notes** field. In the case of plants in, for example, the Cyperaceae or Poaceae, the full inflorescence should be included in the plant height measurement.

Unis (bank notes)

Click on the down arrow to display a list of height (length) units. Click on the applicable unit to insert it into the **Unit** field.

Describes the presence or absence or maturity of the flowers, e.g. present, absent, immature, etc. Click on the down arrow to the right of the field for a list of options. Click on the appropriate option to enter the value into the **Flowers** field.

Describes the presence or absence or maturity of the fruits, e.g. present, absent, immature, etc. Click on the down arrow to the right of the field for a list of options. Click on the appropriate option to enter the value into the **Fruits** field.

Seeds

Describes the presence or absence or maturity of the seeds, e.g. present, absent, immature, etc. Click on the down arrow to the right of the field for a list of options. Click on the appropriate option to enter the value into the **Seeds** field.

Growth Forms

Accesses the *Growth Forms* sub-form (Fig. 38), for entry of one or more growth form(s). If the plant comprises several growth forms, e.g. where the plant is a herb, a geophyte and a climber, these should be recorded individually.

Fig. 38. *Growth Forms* sub-form.

New Specimens: Growth Forms sub-form

Temporary Accession String

These values (Batch number, Item number, Extension, Sheet number) are automatically inserted when a new record is created by clicking on 

Growth form

Click on the down arrow to the right of the field for an alphabetical list of growth forms. Click on the required growth form to insert it into the **Growth form** field. To add the remaining growth forms, click on  to create a new record if multiple growth form entries are required.

Note: If the required growth form is not listed, a new record will have to be added to the 'Growth Forms' table. See Chapter 7 (p. 103).

Click on  to return to the *New Specimens* data entry form.

Flower Colours Accesses the *Flower Colours* sub-form (Fig. 39) for recording flower colour. If the flowers display more than one colour, e.g. red with yellow streaks, then both red and yellow should be recorded individually, and ordered according to dominance.

Fig. 39. *Flower Colours* sub-form.

New Specimens: Flower Colours sub-form

Temporary Accession String

These values (Batch number, Item number, Extension, Sheet number) are automatically inserted when a new record is created by clicking on .

Colour

Click on the down arrow to the right of the **Colour** field for an alphabetical list of colour options. Click on the appropriate colour to insert it into the **Colour** field.

Note: If the required flower colour is not listed, a new flower colour record will have to be added to the 'Colours' table. See Chapter 7 (p. 98).

Order of dominance

Used to weigh the flower colour in terms of colour dominance. If the flower colour is yellow and green and these colours are equally dominant, each colour (recorded separately) will have an **Order of dominance** value of 1. If the flower colour is predominantly yellow with green streaks, then yellow will have an **Order of dominance** value of 1 and green a value of 2.

Note: Enter the flower colour recorded by the collector, and not from the flower(s) on the pressed specimen, as this may fade from drying and pressing.

Click on  to create a new record if multiple flower colour entries are required.

Click on  to return to the *New Specimens* data entry form.

Fruit Colours

Accesses the *Fruit Colours* sub-form (Fig. 40) for recording one or more fruit colour(s). If the plant has more than one fruit colour, e.g. red with yellow streaks, then both red and yellow should be recorded individually, and ordered according to dominance.

Fig. 40. *Fruit Colours* sub-form.

New Specimens: Fruit Colours sub-form

Temporary Accession String

These values (Batch number, Item number, Extension, Sheet number) are automatically inserted when a new record is created by clicking on 

Colour

Click on the down arrow to the right of the **Colour** field for an alphabetical list of colour options. Click on the appropriate colour to insert it into the **Colour** field.

Note: If the required fruit colour is not listed, a new fruit colour record will have to be added to the 'Colours' table. See Chapter 7 (p. 98).

Order of dominance

Used to weigh the fruit colour in terms of colour dominance. If the fruit colour is described as yellow and green (i.e. equally weighted), each colour record would have an **Order of dominance** value of 1. If the fruit colour is yellow with green streaks, the order value for yellow is 1, and for green 2.

Note: Enter the fruit colour recorded by the collector, and not the colour of the fruit on the pressed specimen, as this may fade from drying and pressing.

Click on  to create a new record if multiple fruit colour entries are required.

Click on  to return to the *New Specimens* data entry form.

Notes

Used to store all information not processed on the Specimen ID, Collector's and Locality pages of the *New Specimens* data entry form (plant name, collector's name(s) and locality). All other information should be entered in the **Notes** field even if this is duplicated in the various coded fields e.g. altitude, aspect, substrate, soil type, vegetation, etc.

Notes 'Flag' fields

Used to flag the presence of specific information in the **Notes** field, so that these records can be easily and quickly accessed at a later stage. This is done by double clicking the appropriate 'Flag' field to insert an 'X', e.g. recording an 'X' in the Util 'Flag' field indicates that information about the utilisation of the plant is documented in the **Notes** field.

- **Morphol** (Morphology)—any details of the plant's appearance
- **Ecol** (Ecology)—any habitat details not entered in the coded habitat fields
- **Comm name** (Common name)—vernacular name
- **Util** (Utilisation)—any reference to the utilisation of the plant (e.g. medicinal, building, food, etc.)
- **Toxicity**—any reference to whether the plant is poisonous
- **Repro biol** (Reproductive biology)—any reference to pollination, pollinators, etc.
- **Hort** (Horticulture)—any reference to the cultivation and/or propagation of the plant
- **Aroma**—any reference to the odour, fragrance, and/or aroma of plant parts
- **Undesirability**—any reference to the plant being weedy, invasive, harmful, etc.

Complex habitat information

It is not possible to include any qualifying statements e.g. 'red', sandy soil, or recently burnt '6 months ago', in the coded habitat fields. In the above example, a full description of the soil should be included in the **Notes** field, and the Ecol 'Flag' field (below the notes field) marked with an 'X'.

3.1.6 New Specimens: Other page

Fig. 41. New Specimens data entry form: Other page.

Add coded fields to notes on labels

Allows the user to decide whether or not the coded habitat information should be printed on the specimen labels together with the notes. The default value is 'Y' (Yes). Double click in this field to change the selection to 'N' (No). It is recommended that this information be added to the labels.

Note: If, when printing labels, either of the options 'A' or 'N' are selected at the prompt 'Include coded information on labels?', these will take precedence over the option 'F', where:

A = include coded fields for all labels

N = do not include coded fields for any labels

F = include coded fields according to individual flags.

See **Add coded fields to notes on labels** above.

Specimen status

The state of completion of the various stages in the specimen accessioning process may be indicated in the following three fields:

- **Checked**—Indicates whether the specimen data has been checked for errors and corrected. Enter 'Y' (Yes) or 'N' (No).
- **No. of labels wanted**—Indicates the number of labels to be printed for individual specimens. The default value is 1. Change this value to indicate the number of labels required.
- **Labels done**—Indicates whether or not final labels have been printed for the specimen. The value 'Y' (Yes) is automatically inserted by the system when the final labels are printed. Final labels can only be printed if the **Checked**: field above is flagged 'Y' (Yes), and CAS values have been assigned to the specimens. See CAS number below.

Special Collections

Accesses the *Special Collections* sub-form (Fig. 42), used to link specimens collected as part of a specific expedition; a series of collecting trips to a specific location or focusing on a specific plant group e.g. medicinal, cultivated or poisonous plants.

Fig. 42. *Special Collections* sub-form.

New Specimens: Special Collections sub-form

Temporary Accession String

These values (Batch number, Item number, Extension, Sheet number) are automatically inserted when a new record is created by clicking on 

Special Collection

Click on the down arrow to the right of the **Special Collection** field for an alphabetical list of options. Click on the required option to insert it into this field.

Note: If the required special collection type is not listed, a new special collection type record will have to be added to the 'Special Collections' table. See Chapter 7 (p. 113).

Click on  to create a new record if multiple special collection entries are required.

Click on  to return to the *New Specimens* data entry form.

Voucher for: Accesses the *Voucher for:* sub-form (Fig. 43), used to reference the use of the specimen as a voucher for other scientific studies.

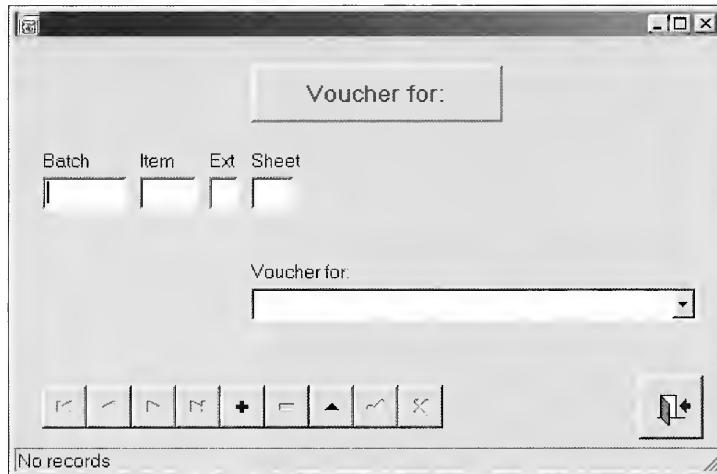


Fig. 43. *Voucher for:* sub-form.

New Specimens: Voucher for: sub-form

Temporary Accession String

These values (Batch number, Item number, Extension, Sheet number) are automatically inserted when a new record is created by clicking on 

Voucher for:

Records in what discipline (e.g. ecology, cytology) or for what purpose (e.g. photography) the specimen or part thereof has been used. Click on the down arrow to the right of the field for an alphabetical list of options. Click on the required option to insert it into the **Voucher for:** field.

Note: If the required voucher type is not listed, a new voucher type record will have to be added to the 'Vouchers' table. See Chapter 7 (p. 120).

Click on  to create a new record if multiple voucher entries are required.

Click on  to return to the *New Specimens* data entry form.

Duplicate Distribution

Accesses the *Duplicate Distribution* sub-form (Fig. 44), which is used to record the distribution of duplicate specimens to other herbaria.

Fig. 44. *Duplicate Distribution* sub-form.

New Specimens: Duplicate Distribution sub-form

Temporary Session Setting

These values (Batch number, Item number, Extension, Sheet number) are automatically inserted when a new record is created by clicking on 

Herbarium code

Stores the acronym of the herbarium (e.g. WIND for National Herbarium of Namibia) to which a duplicate of the specimen has been sent. Click on the “Search for Herbarium” button to access the search prompt. Enter the first 3-4 letters of the herbarium name (or any other search string e.g. the town or country name) and select ‘GO’ to display a list of herbaria containing the search string. Click on the line containing the relevant herbarium name to insert it into the **Herbarium** field.

Click on  to store the herbarium code. Click on  to close the sub-form. Then double click in the **Herbarium code** field to insert the herbarium code.

Note: If the required herbarium is not listed, a new herbarium record will have to be added to the ‘Herbaria’ table. See Chapter 7 (p. 105).

Click on  to create a new record if multiple duplicate distribution entries are required.

Click on  to return to the *New Specimens* data entry form.

Type specimen of:

Accesses the *Type Specimen of:* sub-form (Fig. 45), used to indicate the plant name(s) for which the specimen is a type.

Fig. 45. *Type Specimen of:* sub-form.

New Specimens: Type Specimen of: sub-form

Temporary Accession String

These values (Batch number, Item number, Extension, Sheet number) are automatically inserted when a new record is created by clicking on

Type specification

Indicates the type status of the specimen, e.g. holotype, syntype, isotype, neotype, etc. Click on the down arrow to the right of the field for an alphabetical list of options. Click on the required option to insert it into the **Type specification** field.

Type of: Genus

To enter the genus name, either click in the **Genus** field or on the associated down arrow. Enter the first 3-4 letters of the genus name. An alphabetical list of genera will appear and the first genus starting with the letters entered, will be highlighted. If the required genus name is not immediately visible, use the scroll bar to search for the name. Click on the required name to insert it into the **Genus** field.

Note: If the required genus is not listed, a new genus record will have to be added to the 'Genera' table. See Chapter 7 (p. 102).

Type of: Species

To enter the taxon name (species or infraspecific name), click on the down arrow at the right end of the **Species** field. An alphabetical list of taxa in the selected genus will appear. If necessary, use the scroll bar to find the appropriate taxon. Click on the required name to insert it into the **Species** field.

Note: If the required taxon is not listed, a new taxon record will have to be added to the 'Species' table. See Chapter 7 (p. 114).

If the name of the type is the same as the name assigned to the specimen, click on  to insert the current specimen name into the appropriate fields.

Click on  to create a new record if multiple type name entries are required.

Click on  to return to the *New Specimens* data entry form.

Click on  to return to the *New Specimens: Batch Header* form.

3.2 Transfer Batch

Transfer Batch Copies information for an entire batch of specimens to the Specimens table. Make the batch to be transferred the current batch, i.e. the batch displayed on the screen.

Note: Specimens may only be transferred when they have been flagged as checked. This can be done in two ways:

- Individual specimens can be flagged by setting the **Specimen Status Checked** field to Y 'Yes'. This field is located on the *Other* page of the *New Specimens* data entry form.
- Entire batches of specimens can be flagged by clicking the  button on the *New Specimens: Batch Header* form.

3.3 Transfer One

Transfer One Copies information for individual specimens in a batch to the main Specimen Database table. Ensure that the current batch contains the specimen to be transferred. A prompt 'Which item number should be transferred?' will appear. Enter the item number of the specimen to be transferred, and select 'OK'. The Item number is the value found in the **ItemNo** field of the Temporary Accession String (TAS) at the top of the *New Specimens* data entry form.

Note: Specimens may only be transferred when they have been flagged as checked. See **Note** under 3.2 above.

3.4 Print Labels

Print Labels Prints draft or final labels for specimens in the current batch. Click on this button to display the prompt 'Draft or Final labels? D/F'. Enter 'D' to print draft labels, or 'F' to print final labels. See *Print Labels* (p. 122).

3.5 Delete Specimens

Delete Specimens Deletes all the specimens in the current batch. If there are specimens without CAS values, or for which final labels have not been printed, the system displays this information and prompts whether or not the batch should still be deleted.

Click on  to return to the *Specimen Database* menu.

Chapter 4

Extending Specimens

Existing Specimens

Existing Specimens

Accesses the *Specimens* data entry form, for capture of specimen information from specimens already accessioned (filed) in a herbarium.

4.1 Specimens: Specimen ID page

Specimen ID | Collector(s) | Locality | Habitat | Description | Other

Specimen ID: 74760 | CasNo: 74760 | Ext Sheet: 0

Specimen ID

Double-click NUMBER above for next number
Copy to next sheet

Barcode
UZL0820013-0

Material
Herbarium voucher

Family
CYPERACEAE

Genus
Abildgaardia

Species
hygrophila (Gordon-Gray) Lye

ID level

Temporary name
Det | MM | YYYY

Donated by:
Herbarium Number
Double-click after finding herb.
Search for Herbarium

Duplicate of CAS:
Herbarium Number Ext Sheet
Enter CAS no to be duplicated
Copy to duplicate record
Find coll/no to duplicate

Record 1 of 1

Fig. 46. Specimens data entry form: Specimen ID page.

Computer Accession String (CAS)

A unique four-part string assigned to each specimen. It comprises the herbarium code, the number component, the extension, and the sheet number.

Herbarium (CasHerb)

Stores the holding herbarium code, as tabulated in *Index Herbariorum*. This code is set by the user for his/her system when the Specimen Database is first opened (See Chapter 1: Starting the Specimen Database, p. #), and appears as a default value thereafter. If necessary, it may be modified from the *Local Settings* menu (see Chapter 10, p. 131).

Number (CasNo)

Each existing specimen is automatically allocated a unique number. Click on to clear the screen, enter a new record and allocate the next available number.

Extension (Ext)

Used when multiple collections are mounted on a single herbarium sheet. These are different collections by a single or various collector(s). Enter 'A' for the first collection, 'B' for the second, etc. If the letter is entered in lower case, it will automatically be converted to upper case.

Sheet

Indicates the sheet number when the collection has been split over several sheets.

Copy to next sheet

Copies information from the current record to a new record for the next sheet. If the original sheet number is 0, this is incremented to 1 and the new sheet is given a sheet number of 2. After clicking on this button, the confirm copy prompt, 'Copy record to Sheet 2?/3?/4? Y/N' appears. Type 'Y' (Yes) to copy the sheet, or 'N' (No) to cancel.

Note: The**Copy to next sheet**

button should only be used once all the information for the current sheet has been entered and saved. If subsequent sheets are required, these should be copied from the sheet with the highest sheet number, i.e. sheet 1 copied from sheet 0, sheet 2 copied from sheet 1, etc.

Donated by

Details of the herbarium by which the specimen was donated.

Herbarium

Enter the herbarium code of the donating herbarium, as listed in *Index Herbariorum*. If the code is not known, see 'Search for Herbarium' below.

Note: Wherever possible, the original or primary donor of the specimen should be recorded, and not subsequent donor(s).

Search for Herbarium

Used to find a herbarium code. The search prompt 'Enter search string and click GO button' appears. Enter the first 3-4 letters of the herbarium name (or any other search string, e.g. the town or country name) and select 'GO'. A list of herbaria containing the entered string appears. Click on the line containing the relevant herbarium entry. The herbarium code is inserted into the Herbarium Selection field.

 Click on  to store the herbarium code. Click on  to close the sub-form. Then double click in the **Donated by: Herbarium** field to insert the herbarium code.

Note: If the required herbarium is not listed, a new herbarium record will have to be added to the 'Herbaria' table. See Chapter 7 (p. 105).

Number

If available, enter the herbarium accession number of the donated specimen. If the herbarium has been computerised, the computer accession number should take precedence over other numbers.

To clear information from the **Herbarium** and **Number** fields, click the  button to the right of **Number** field.

Duplicate of CAS (Computer Accession String)

This process is used to duplicate a specimen record received from another herbarium and assign it a local CAS value. This alleviates having to re-capture specimen data that already exists electronically, having been previously captured by another herbarium. An example would be the donation to your herbarium (e.g. NH) of electronic data from another herbarium (e.g. PRE) of specimens for which there are duplicate specimens in your herbarium. After adding the donated electronic records into your database, this function allows these to be duplicated and assigned a local 'NH' herbarium CAS values.

To copy an existing record after a new (empty) record has been inserted together with its unique CAS value:

1. If the CAS of the record to be duplicated is known, enter the CAS and click on **Copy to duplicate record** to copy the information into the new empty record.
2. If the CAS of the record to be duplicated is not known, click on **Find coll/no to duplicate** and enter the collector's name at the prompt, followed, if known, by the collector's number. This accesses all specimen records in the Specimens table that are associated with the entered collector's name (and number). If several records are located (e.g. entering White 123 may locate White, K. and White, S. with collector's number 123), use the record navigation buttons at the bottom of the screen to find the required record.

Click on  to remember the CAS value, and then click on  to return to the *Specimens* data entry form. Double click in the **Duplicate of CAS: Number** field to insert the CAS number, and then click on **Copy to duplicate record** to copy the information into the new empty record.

To clear information from the **Duplicate of CAS** fields, click the  button to the right of the **Sheet** field.

Note: Before duplicating a record, ensure a) that a new record has been created by clicking  and b) that the record has an appropriate CAS.

Material

Used to indicate the kind of material being encoded. The default value is 'Herbarium specimen'. Click on the down arrow to the right of the **Material** field to display a list of options. Click on the required option to insert it into the **Material** field.

Note: If the required material type is not listed, a new material type record will have to be added to the 'Materials' table. See Chapter 7 (p. 108).

Family

A display field that automatically indicates the family name once the genus name has been entered.

Note: To add a new family to the 'Families' table, see Chapter 7 (p. 101).

Genus

To enter the genus name, either click in the **Genus** field or on the associated down arrow. Enter the first 3-4 letters of the genus name. An alphabetical list of genera will appear and the first genus starting with the letters entered, will be highlighted. If the required genus name is not immediately visible, use the scroll bar to search for the name. Click on the required name to insert it into the **Genus** field.

Note: If the required genus is not listed, a new genus record will have to be added to the 'Genera' table. See Chapter 7 (p. 102).

Species

To enter the taxon name (species or infraspecific name), click on the down arrow at the right end of the **Species** field. An alphabetical list of taxa in the selected genus will appear. If necessary, use the scroll bar to find the appropriate taxon. Click on the required name to insert it into the **Species** field. If the selected name has been placed into synonymy (indicated by a ' = ' after the name), a dialogue box, offering a choice between an alternative name in current use and the name selected will appear. This will only appear after the cursor has been moved to a new field. Select 'Yes' to insert the new name offered, and 'No' to insert the name originally selected.

Note:

1. If the required taxon is not listed, a new taxon record will have to be added to the 'Species' table. See Chapter 7 (p. 114).
2. If the specimen has only been identified to the species level, do not add the species name as a new record in the Species table. Use the ID level below to truncate the name to display only the species component.

To clear information from the **Genus** and **Species** fields, click the  button to the right of the **Species** field.

ID level

Used to indicate the level of accuracy of the taxon name identification. Click on the arrow to the right of the **ID level** field to display the following list of options :

- **aff.** (affinis)—closely related to the selected taxon, but does not match it exactly.
- **cf.** (confer)—compare with the selected taxon, to which it is similar but does not match exactly. This option indicates a lesser degree of similarity than aff.
- **indet.** (inderterminavit)—the taxon could not be identified.
- **to species level only**—the taxon could not be identified to the infraspecific level. This will result in only the specific epithet being displayed in the **Species** field. See **Note** below.
- **to subspecies level only**—the taxon could not be identified to the varietal level. This will result in only the specific and subspecific epithets being displayed in the **Species** field. See **Note** below.

Click on the required option to insert it into the **ID level** field.

Note: When a specimen has been identified to the species or subspecific level only, select any of the available infraspecific taxa (preferably the autonym). Selecting the ID level 'to species level only' or 'to subspecies level only' removes the unwanted infraspecific component of the name, leaving only the part of the name required displayed.

Temporary name

Used to record the personalised taxon name or description assigned to the plant by the collector.

Determinavit (Det)

Used to record the name of the person who identified the plant.

Month (MM) Year (YYYY)

The month and year in which the determination was made.

4.2 Specimens: Collector(s) page

Specimen ID	Collector(s)	Locality	Habitat	Description	Other
	Hobohm, H				

Collector's specimen no: 345

Date collected: 2/6/1998

Collectors:

Record 1 of 1

Fig. 47. Specimens data entry form: Collector(s) page.

Collector's specimen no.

Enter the number assigned to the specimen by the collector.

Use the **Change spmn no** button to change the specimen number after the record has been saved.

Collecting date: Day (DD) / Month (MM) / Year (YYYY)

Enter the date (day, month and year) on which the specimen was collected.

Collectors: Accesses the Collectors sub-form, used to record the collector's name(s) (Fig. 48).

The screenshot shows a Windows-style application window titled "Collectors". Inside, there are several input fields: "CasHerb", "CasNo", "Ext", "Sheet", and "Collector's specimen no". Below these are two dropdown-like fields: "Ex" and "Collector", and an "Order" field. At the bottom of the window is a toolbar with icons for "New", "Delete", and "Edit". A message "No records" is displayed at the bottom left.

Fig. 48. Collectors sub-form.

Specimens: Collectors sub-form

Computer Accession String (CAS)

These values (Herbarium, Number, Extension, Sheet number) are automatically inserted when a new record is created by clicking on .

Ex

Enter "Ex" in this field where the second collector was responsible for collecting the plant material and providing the site information, but did not prepare the specimen or assign a collector's number to it, this having been done by the first collector. For example, Meddley-Wood, curator of the Natal Herbarium, often prepared specimens from material brought in for identification by members of the public.

Collector

Click on the **Collector** field or the associated down arrow. Enter the first 3-4 letters of the collector's name. An alphabetical list of collectors' surnames will appear and the first surname starting with the letters entered, will be highlighted. If the collector's name is not immediately visible, use the scroll bar to find the required surname and initials. Click on the name to insert it into the **Collector** field.

Note: If a collector's name is not listed, a new record will have to be added to the 'Collectors' table. This can be done via the New Collector button  or see Chapter 7 (p. 97).

Order

Indicates the order to be followed when printing the names of multiple collectors on the specimen label. The first collector is automatically assigned a default order value of 1. For each subsequent collector, the value in the order field is automatically incremented by one.

Click on  to clear the **Collectors** field, and increment the order value by one. Repeat these steps for all additional collectors.

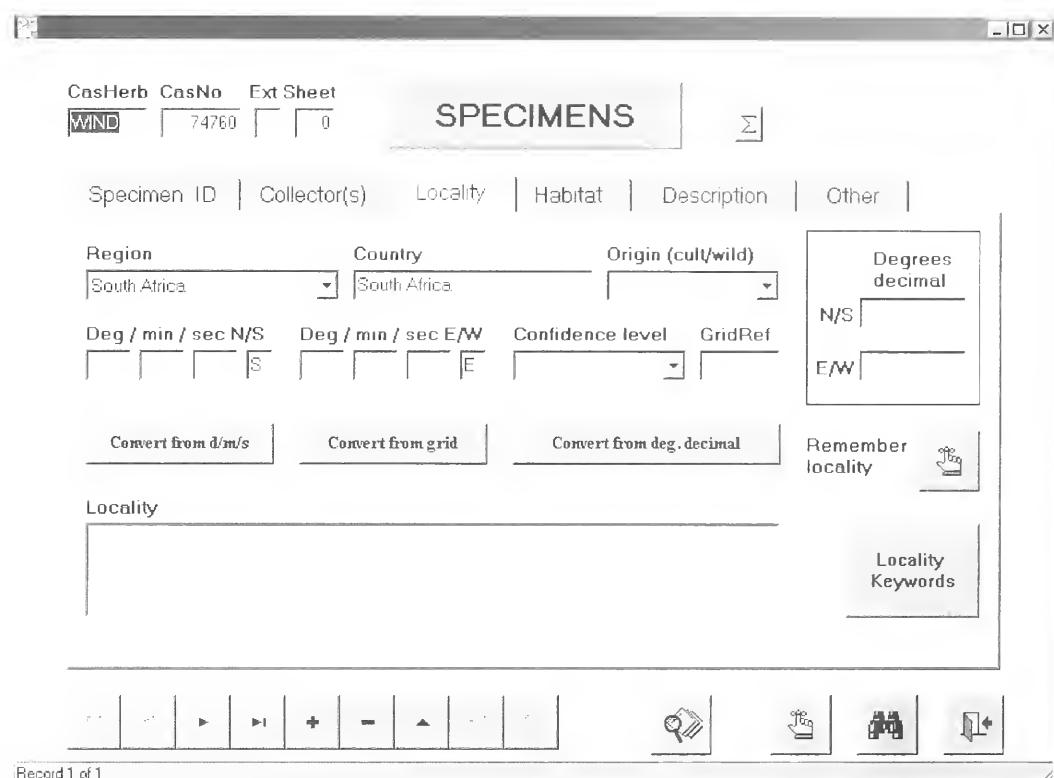
To enter the name of an additional collector not represented in the list of collectors, click on  or follow the procedures explained in Chapter 7 (p. 97).

To remember the collector's name(s) for use in subsequent records, click on . This will store the collector's name(s) in memory.

Click on  to return to the *Specimens* data entry page. The collector(s) entered on the *Collectors* sub-form will automatically be displayed on the *Specimens Collectors* page.

To recall the collector's name(s) stored in memory for insertion in a subsequent specimen record click on .

4.4 Specimens Locality page



The screenshot shows the 'SPECIMENS' data entry form. At the top, there are buttons for 'CasHerb', 'CasNo' (74760), 'Ext Sheet' (0), and a search icon. The main area has a table with columns: Specimen ID, Collector(s), Locality, Habitat, Description, and Other. Below this is a form for entering coordinates:

- Region:** South Africa (dropdown menu)
- Country:** South Africa
- Origin (cult/wild):** (dropdown menu)
- Deg / min / sec N/S:** (input fields for D, M, S)
- Deg / min / sec E/W:** (input fields for D, M, E)
- Confidence level:** (dropdown menu)
- GridRef:** (input field)

On the right, there are conversion buttons: 'Convert from d/m/s', 'Convert from grid', and 'Convert from deg. decimal'. Below these are buttons for 'Remember locality' (with a hand icon) and 'Locality Keywords'. At the bottom, there are navigation buttons (back, forward, search, etc.) and a status bar showing 'Record 1 of 1'.

Fig. 49. Specimens data entry form: Locality page.

4.4.1 Locality

Enter the first 3-4 letters of the region. Click on the down arrow to the right of the field to list all regions starting with the entered search string. An alphabetical list of regions will appear and the first region starting with the letters entered, will be highlighted. Click on the required region name to insert it into the **Region** field.

Note: If the required region is not listed, a new region record will have to be added to the 'Regions' table. See Chapter 7 (p. 111).

Country

A display field that automatically indicates the country corresponding to the entered region.

Origin (Cultivated/Wild)

Records the original source of the specimen, e.g. collected from the wild, cultivated from material collected from the wild, etc. Click on the down arrow to the right of this field to display a list of options. Click on the appropriate option to insert it into the **Origin** field.

Deg / min / sec, N/S

Enter the latitude of the specimen locality (in degrees, minutes and seconds), if available.

Deg / min / sec, E/W

Enter the longitude of the specimen locality (in degrees, minutes and seconds), if available.

The default quadrants are south (S) and east (E), but these may be changed to north and west if required.

Confidence level

Quantifies the degree of accuracy of the longitude and latitude reading. Click on the down arrow to the right of the field to access a list of options. Click on the required confidence level to insert it into the **Confidence level** field.

Grid reference (GridRef)

The quarter degree grid reference should be inserted only after the longitude and latitude values have been entered.

This can be done manually or by clicking on **Convert from d/m/s**. In situations where only the quarter degree grid value is provided, the conversion to Degrees, Minutes and Seconds can be done by clicking on **Convert from grid**.

Degrees decimal**N/S and E/W**

Enter the decimal value for latitude (N/S) and longitude (E/W). To convert the degrees decimal values to Degrees, Minutes and Seconds and quarter degree click on **Convert from deg. decimal**.

Two formats of decimalization are accepted; (1) decimalization of degrees e.g. 36.1492 and (2) decimalization of minutes e.g. 36.41.271.

Locality

Enter the collection locality of the specimen, ordered from major to minor and precise locality. Include habitat data when this is necessary to pinpoint the exact collection site. e.g. Underberg district, southern Drakensberg, Loteni Nature Reserve, seepage areas on south-facing slopes.

Note: The same locality could represent a major, minor or precise locality, depending on the locality details provided; e.g. for the locality **Pinetown**:

1. **Pinetown** (precise) [poor quality collecting information]
2. Durban district (major), **Pinetown** (minor), Paradise Valley Nature Reserve (precise)
3. **Pinetown** (major), Paradise Valley Nature Reserve (minor), eastern boundary of reserve, along stream bank (precise)



Used to store selected locality data in memory, namely, degrees, minutes and seconds, grid reference degrees decimal and locality values for use in subsequent records.

- Double clicking on the first line of the **Locality** field of a new record duplicates the stored locality information in the appropriate fields.
- Double clicking on the **Degrees N/S** field recalls only the degrees, minutes and seconds and grid reference information.

**Locality
Keywords**

Used to access the *Locality Keywords* sub-form (Fig. 50). This sub-form is used to enter locality keywords from the specimen locality data. These keywords facilitate rapid searches when querying the database.

Fig. 50. *Locality Keywords* sub-form.

Specimens: Locality Keywords sub-form

Computer Accession String (CAS)

These values (Herbarium, Number, Extension, Sheet number) are automatically inserted when a new record is created by clicking on

Locality

To insert a locality keyword, click in the **Locality** field. Enter the first 3-4 letters of the locality name. An alphabetical list of localities will appear and the first locality starting with the letters entered, will be highlighted. If the required locality is not immediately visible, use the scroll bar to search for it. Click on the name to insert it into the **Locality** field. After entering the first record, click on to create a new record if multiple locality keyword entries are required.

Note: If the locality name is not listed it will have to be added to the 'Localities' table. See below.



Accesses the *Locality Keywords* sub-form, used to add new locality keywords to the 'Localities' table. See Chapter 7 (p. 107) for entering a new locality keyword.

Click on to return to the *Specimens* data entry form.

4.4 Specimens: Habitat page

Fig. 51. Specimens data entry form: *Habitat* page.

Altitude

Enter the altitude at which the specimen was collected. If a range of altitudes is given, for example 200-400 m, enter the midpoint value (300 m). The level of confidence is then recorded as 100 m by selecting the '51-100 m' option.

Feet/meters (Ft/m)

Click on the down arrow to the right of the **Ft/m** field to list the available altitude unit options, or simply enter 'ft' or 'm'. Click on the required unit to insert it into the **Ft/m** field.

Confidence level

Quantifies the degree of accuracy of the altitude reading. Click on the down arrow to the right of this field to access a list of options. Click on the required option to insert it into the **Confidence level** field.

Aspect

Click on the down arrow to the right of the field to display a list of aspect options. Click on the required option to insert it into the **Aspect** field.

Salinity

Salinity value in parts per thousand (‰)

Habitats

Accesses the *Habitats* sub-form (Fig. 52), which is used to record macro- and micro-habitats within which the specimen was recorded growing.

Fig. 52. *Habitats* sub-form.

Specimens: *Habitats* sub-form

Computer Accession String (CAS)

These values (Herbarium, Number, Extension, Sheet number) are automatically inserted when a new record is created by clicking on

Habitat

Click on the down arrow to the right of this field for an alphabetical list of habitat options. The list contains both macro-habitats (e.g. hilltop) and micro-habitats (e.g. pan/depression). Click on the required option to insert it into the **Habitat** field. After entering and saving the first record, click on to create a new record if multiple habitat entries are required.

Note: If the required habitat is not listed, a new habitat record will have to be added to the 'Habitats' table. See Chapter 7 (p. 104).

Click on to return to the *Specimens* data entry form.

Substrate

Click on the down arrow to the right of the field for an alphabetical list of substrate types. Click on the required option to insert it into the **Substrate** field. See also Complex habitat information (p. 66).

Note: If the required substrate is not listed, a new substrate record will have to be added to the 'Substrates' table. See Chapter 7 (p. 117).

Soil

Click on the down arrow to the right of the field for an alphabetical list of soil types. Click on the required option to insert it into the **Soil** field. See also Complex habitat information (p. 66).

Note: If the required soil type is not listed, a new soil record will have to be added to the 'Soil Types' table. See Chapter 7 (p. 112).

Lithology

Click on the down arrow to the right of the field for an alphabetical list of lithology types. Click on the required option to insert it into the **Lithology** field. See also Complex habitat information (p. 66).

Note: If the required lithology is not listed, a new lithology record will have to be added to the 'Lithology' table. See Chapter 7 (p. 106).

Moisture

Click on the down arrow to the right of the field for an alphabetical list of moisture regimes. Click on the required option to insert it into the **Moisture** field. See also Complex habitat information (p. 66).

Note: If the required moisture regime is not listed, a new moisture regime record will have to be added to the 'Moistures' table. See Chapter 7 (p. 109).

Vegetation

Click on the down arrow to the right of the field for an alphabetical list of vegetation types. Click on the required option to insert it into the **Vegetation** field. See also Complex habitat information (p. 66).

Note: If the required vegetation type is not listed, a new vegetation type record will have to be added to the 'Vegetation Types' table. See Chapter 7 (p. 119).

Biotic effect

Click on the down arrow to the right of the field for an alphabetical list of biotic effects. Click on the required option to insert it into the **Biotic effect** field. See also Complex habitat information (p. 66).

Note: If the required biotic effect is not listed, a new biotic effect record will have to be added to the 'Biotics' table. See Chapter 7 (p. 96).

Exposure

Click on the down arrow to the right of the field for an alphabetical list of exposure types. Click on the required option to insert it into the **Exposure** field. See also Complex habitat information (p. 66).

Note: If the required exposure type is not listed, a new exposure type record will have to be added to the 'Exposure' table. See Chapter 7 (p. 100).

Occurrence

Click on the down arrow to the right of the field for an alphabetical list of occurrence types. Click on the required option to insert it into the **Occurrence** field. See also Complex habitat information (p. 66).

Note: If the required occurrence is not listed, a new occurrence record will have to be added to the 'Occurrence' table. See Chapter 7 (p. 110).

 Displays a list of definitions of the ecological terms associated with habitat data entry fields.

4.5 Specimens: Description page

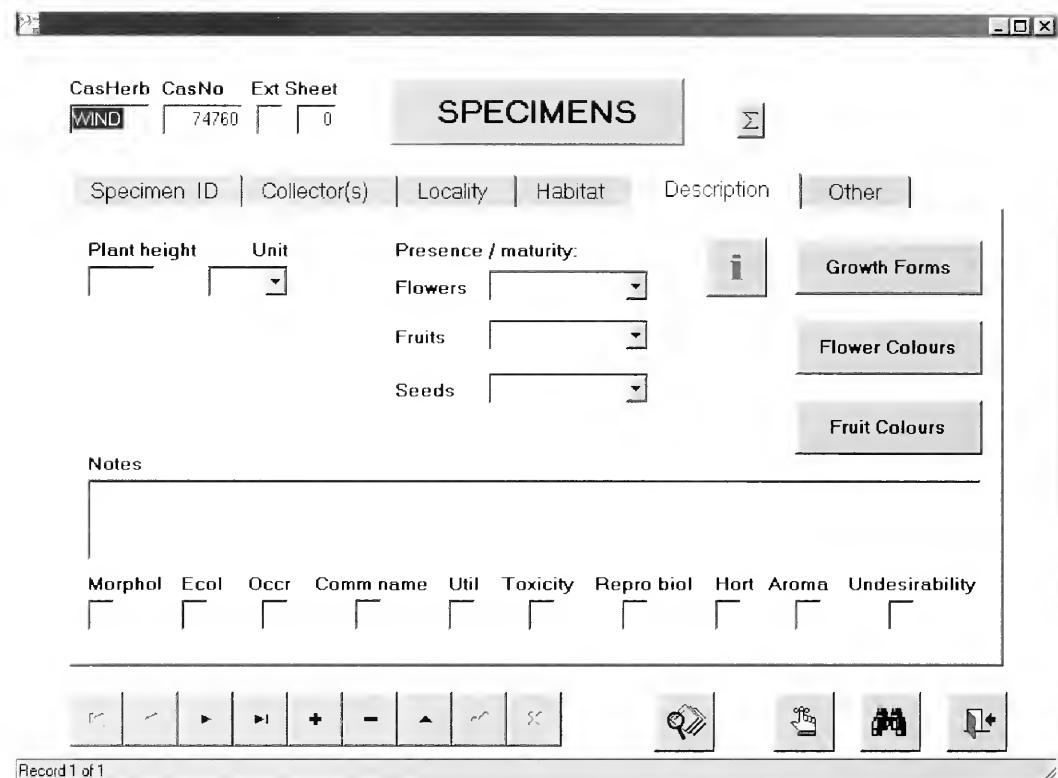


Fig. 53. Specimens data entry form: Description page.

Plant height

Enter the plant height recorded by the collector, or the measured height of the specimen on the sheet, provided the specimen is entire. If there are multiple specimens, enter the value of the tallest plant into the **Plant height** field, and include the range of heights in the **Notes** field. In the case of plants in, for example, the Cyperaceae or Poaceae, the full inflorescence should be included in the plant height measurement.

Unit (plant height)

Click on the down arrow to display a list of height (length) units. Click on the applicable unit to insert it into the **Unit** field.

Presence/maturity (of flowers, fruits and seeds)

Flowers

Describes the presence or absence or maturity of the flowers, e.g. present, absent, immature, etc. Click on the down arrow to the right of the field for a list of options. Click on the appropriate option to insert the value into the **Flowers** field.

Fruits

Describes the presence or absence or maturity of the fruits, e.g. present, absent, immature, etc. Click on the down arrow to the right of the field for a list of options. Click on the appropriate option to insert the value into the **Fruits** field.

Seeds

Describes the presence or absence or maturity of the seeds, e.g. present, absent, immature, etc. Click on the down arrow to the right of the field for a list of options. Click on the appropriate option to insert the value into the **Seeds** field.

Growth Forms Accesses the *Growth Forms* sub-form (Fig. 54) for entry of one or more growth form(s). If the plant comprises several growth forms, e.g. where the plant is a herb, a geophyte and a climber, these should be recorded individually.

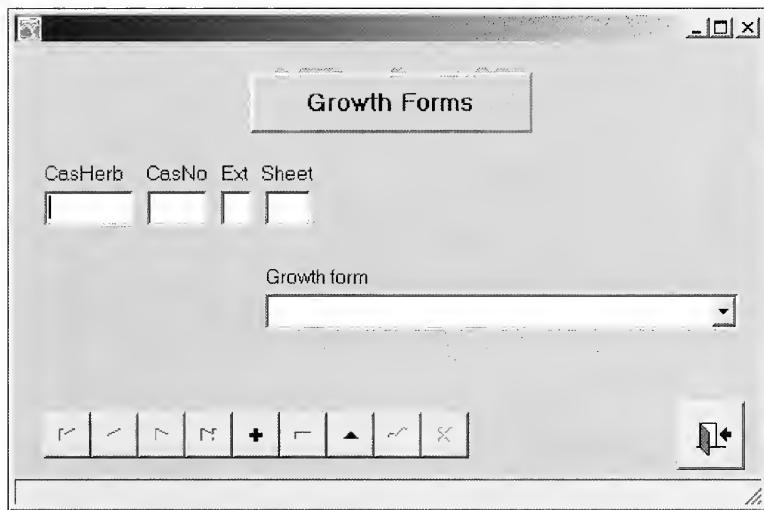


Fig. 54. *Growth Forms* sub-form.

Specimens: *Growth Forms* sub-form

Computer Accession String (CAS)

These values (Herbarium, Number, Extension, Sheet number) are automatically inserted when a new record is created by clicking on

Growth form

Click on the down arrow to the right of the field for an alphabetical list of growth forms. Click on the required growth form to insert it into the **Growth form** field. To add the remaining growth forms, click on to create a new record if multiple growth form entries are required.

Note: If the required growth form is not listed, a new record will have to be added to the 'Growth Forms' table. See Chapter 7 (p. 103).

Click on to return to the *Specimens* data entry form.

Flower Colours Accesses the *Flower Colours* sub-form (Fig. 55) for recording one or more flower colour(s). If the plant has more than one flower colour, e.g. red with yellow streaks, then both red and yellow should be recorded individually, and ordered according to dominance.

Fig. 55. *Flower Colours* sub-form.

Specimens: Flower Colours sub-form

Computer Accession String (CAS)

These values (Herbarium, Number, Extension, Sheet number) are automatically inserted when a new record is created by clicking on 

Colour

Click on the down arrow to the right of the **Colour** field for an alphabetical list of colour options. Click on the appropriate colour to insert it into the **Colour** field.

Note: If the required flower colour is not listed, a new flower colour record will have to be added to the 'Colours' table. See Chapter 7 (p. 98).

Order of dominance

Used to weigh the flower colour in terms of colour dominance. If the flower colour is yellow and green and these colours are equally dominant, each colour (record) will have an **Order of dominance** value of 1. If the flower colour is predominantly yellow with green streaks, then yellow will have an **Order of dominance** value of 1 and green a value of 2.

Note: Enter the flower colour recorded by the collector, and not the colour of flower(s) on the pressed specimen, as this may fade from drying and pressing.

Click on  to create a new record if multiple flower colour entries are required.

Click on  to return to the *Specimens* data entry form.

Fruit Colours Accesses the *Fruit Colours* sub-form (Fig. 56) for recording one or more fruit colour(s). If the plant has more than one fruit colour, e.g. red with yellow streaks, then both red and yellow should be recorded individually, and ordered according to dominance.

Fig. 56. *Fruit Colours* sub-form.

Specimens: *Fruit Colours* sub-form

Computer Accession String (CAS)

These values (Herbarium, Number, Extension, Sheet number) are automatically inserted when a new record is created by clicking on

Colour

Click on the down arrow to the right of the **Colour** field for an alphabetical list of colour options. Click on the appropriate colour to insert it into the **Colour** field.

Note: If the required fruit colour is not listed, a new fruit colour record will have to be added to the 'Colours' able. See Chapter 7 (p. 98).

Order of dominance

Used to weigh the fruit colour in terms of colour dominance. If the fruit colour is described as yellow and green (i.e. equally weighted), each colour record would have an **Order of dominance** value of 1. If the fruit colour is yellow with green streaks, the order value for yellow is 1, and for green 2.

Note: Enter the fruit colour recorded by the collector, and not from the fruit on the pressed specimen, as these may fade from drying and pressing.

Click on to create a new record if multiple fruit colour entries are required.

Click on to return to the *Specimens* data entry form.

Notes

Used to store all information not processed on the Specimen ID, Collector's and Locality pages of the **Specimens** data entry form (plant name, collector's name(s) and locality). All other information should be entered in the **Notes** field even if this is duplicated in the various coded fields e.g. altitude, aspect, substrate, soil type, vegetation, etc.

Notes 'Flag' fields

Used to flag the presence of specific information in the **Notes** field, so that these records can be easily and quickly accessed at a later stage. This is done by double clicking the appropriate 'Flag' field to insert an 'X', e.g. recording an 'X' in the Util 'Flag' field indicates that information about the utilisation of the plant is documented in the **Notes** field.

- **Morphol** (Morphology)—any details of the plant's appearance
- **Ecol** (Ecology)—any habitat details not entered in the coded habitat fields
- **Comm name** (Common name)—vernacular name
- **Util** (Utilisation)—any reference to the utilisation of the plant (e.g. medicinal, building, food, etc.)
- **Toxicity**—any reference to whether the plant is poisonous
- **Repro biol** (Reproductive biology)—any reference to pollination, pollinators, etc.
- **Hort** (Horticulture)—any reference to the cultivation and/or propagation of the plant
- **Aroma**—any reference to the odour, fragrance, and/or aroma of plant parts
- **Undesirability**—any reference to the plant being weedy, invasive, harmful, etc.

Complex habitat information

It is not possible to include any qualifying statements e.g. 'red', sandy soil, or recently burnt '6 months ago', in the coded habitat fields. In the above example, a full description of the soil should be included in the **Notes** field, and the Ecol 'Flag' field (below the notes field) marked with an 'X'.

4.6 Specimens: Other page

Fig. 57. Specimens data entry form: Other page.

Specimen status:

Refers to the state of completion of the various stages in the specimen accessioning process.

Checked

Indicates whether the specimen data has been checked and corrected. Enter 'Y' (Yes) or 'N' (No).

Special Collections

Accesses the *Special Collections* sub-form (Fig. 58), used to link specimens collected as part of a specific expedition; a series of collecting trips to a specific location or focusing on a specific plant group e.g. medicinal, cultivated or poisonous plants.

Fig. 58. *Special Collections* sub-form.

Specimens: Special Collections sub-form**Computer Accession String (CAS)**

These values (Herbarium, Number, Extension, Sheet number) are automatically inserted when a new record is created by clicking on .

Special Collection

Click on the down arrow to the right of the **Special Collection** field for an alphabetical list of options. Click on the required option to insert it into this field.

Note: If the required special collection type is not listed, a new special collection type record will have to be added to the 'Special Collections' table. See Chapter 7 (p. 113).

Click on  to create a new record if multiple special collection entries are required.

Click on  to return to the *Specimens* data entry form.

Voucher for:

Accesses the *Voucher for:* sub-form (Fig. 59), used to reference the use of the specimen as a voucher for other scientific studies.

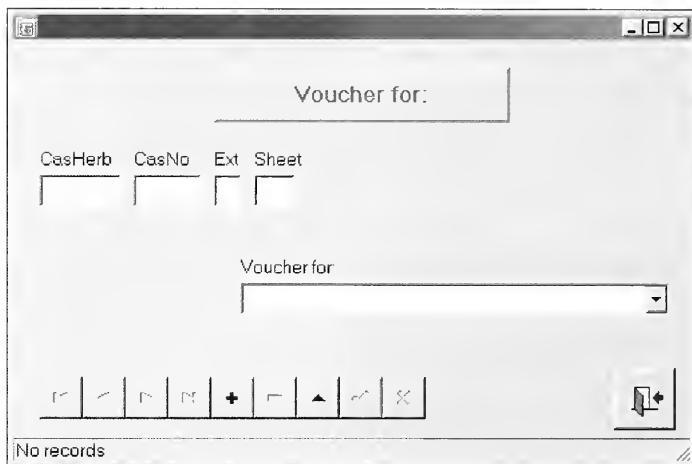


Fig. 59. *Voucher for:* sub-form.

Specimens: *Voucher for:* sub-form

Computer Accession String (CAS)

These values (Herbarium, Number, Extension, Sheet number) are automatically inserted when a new record is created by clicking on 

Voucher for:

Records in what discipline (e.g. ecology, cytology) or for what purpose (e.g. photography) the specimen or part thereof has been used. Click on the down arrow to the right of the field for an alphabetical list of options. Click on the required option to insert it into the **Voucher for:** field.

Note: If the required voucher type is not listed, a new voucher type record will have to be added to the 'Vouchers' table. See Chapter 7 (p. 120).

Click on  to create a new record if multiple voucher entries are required.

Click on  to return to the *Specimens* data entry form.

Duplicate Distribution

Accesses the *Duplicate Distribution* sub-form (Fig. 60), which is used to record the distribution of duplicate specimens to other herbaria.

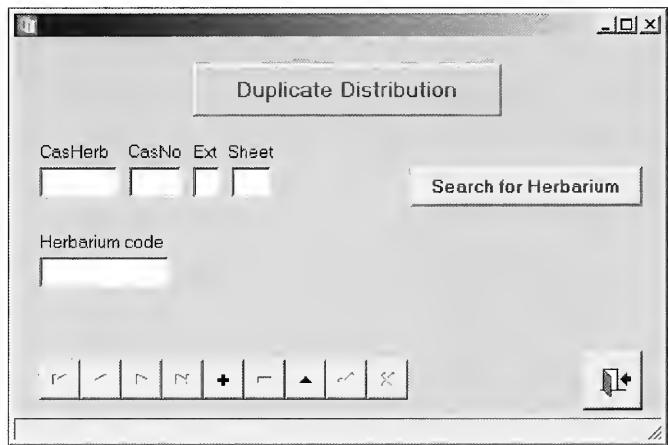


Fig. 60. Duplicate Distribution sub-form.

Specimens: Duplicate Distribution sub-form

Computer Accession String (CAS)

These values (Herbarium, Number, Extension, Sheet number) are automatically inserted when a new record is created by clicking on .

Herbarium code

Stores the acronym of the herbarium (e.g. WIND for National Herbarium of Namibia) to which a duplicate of the specimen has been sent. Click on the “Search for Herbarium” button to access the search prompt. Enter the first 3-4 letters of the herbarium name (or any other search string e.g. the town or country name) and select ‘GO’ to display a list of herbaria containing the search string. Click on the line containing the relevant herbarium name to insert it into the **Herbarium** field.

Click on  to store the herbarium code. Click on  to close the sub-form. Then double click in the **Herbarium code** field to insert the herbarium code.

Note: If the required herbarium is not listed, a new herbarium record will have to be added to the ‘Herbaria’ table. See Chapter 7 (p. 105).

Click on  to create a new record if multiple duplicate distribution entries are required.

Click on  to return to the *Specimens* data entry form.

Type specimen of: Accesses the *Type Specimen of:* sub-form (Fig. 61), used to indicate the plant name(s) for which the specimen is a type.

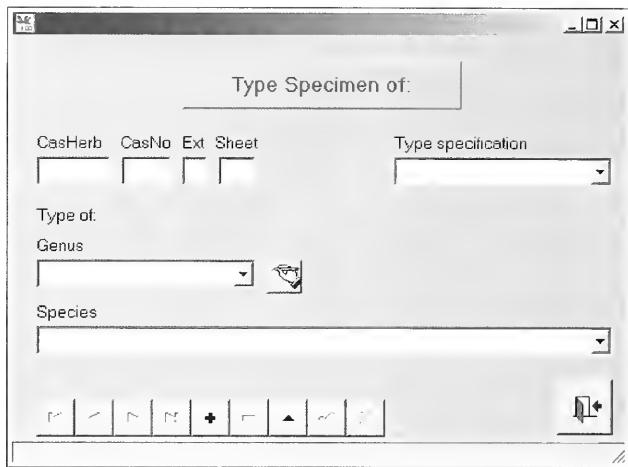


Fig. 61. *Type Specimen of:* sub-form.

Specimens: Type Specimen of sub-form

Computer Accession String (CAS)

These values (Herbarium, Number, Extension, Sheet number) are automatically inserted when a new record is created by clicking on

Type specification

Indicates the type status of the specimen, e.g. holotype, syntype, isotype, neotype, etc. Click on the down arrow to the right of the field for an alphabetical list of options. Click on the required option to insert it into the **Type specification** field.

Type of: Genus

To enter the genus name, either click in the **Genus** field or on the associated down arrow. Enter the first 3-4 letters of the genus name. An alphabetical list of genera will appear and the first genus starting with the letters entered, will be highlighted. If the required genus name is not immediately visible, use the scroll bar to search for the name. Click on the required name to insert it into the **Genus** field.

Note: If the required genus is not listed, a new genus record will have to be added to the 'Genera' table. See Chapter 7 (p. 102).

Type of: Species

To enter the taxon name (species or infraspecific name), click on the down arrow at the right end of the **Species** field. An alphabetical list of taxa in the selected genus will appear. If necessary, use the scroll bar to find the appropriate taxon. Click on the required name to insert it into the **Species** field.

Note: If the required taxon is not listed, a new taxon record will have to be added to the 'Species' table. See Chapter 7 (p. 114).

If the name of the type is the same as the name assigned to the specimen, click on  to insert the current specimen name into the appropriate fields.

Click on  to create a new record if multiple type name entries are required.

Click on  to return to the *Specimens* data entry form.

Click on  to return to the *Specimens Database* menu.

Chapter 5

Report

Reports

Reports

Accesses the *Reports* menu (Fig. 62), listing the report options currently supported by the system. Click on the required option to select it.

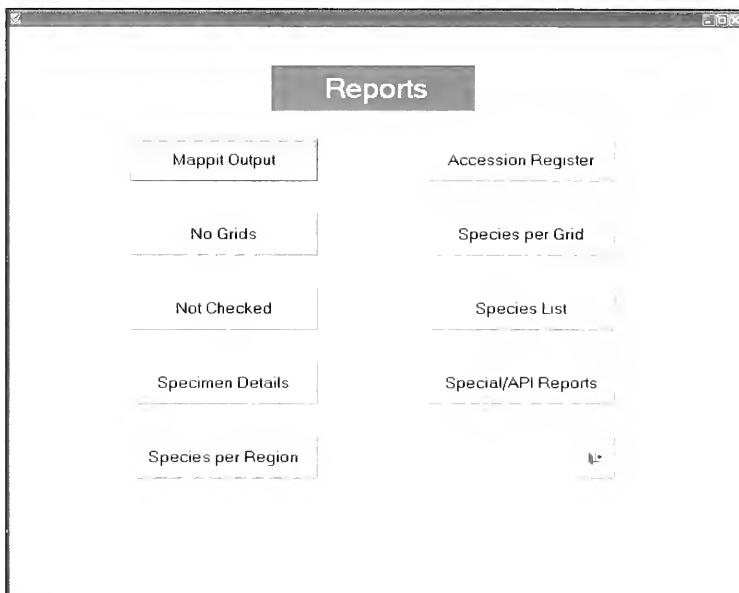


Fig. 62. Reports menu.

Reports menu

5.1 Mappit Output

Mappit Output

Accesses the *Output for Mappit* form (Fig. 63). This runs a report to generate a list of grid references for a selected family, genus, or species. Grid references (e.g. 2123AC) are then written to a file from which they may be imported into Mappit (a geographical mapping system) or printed in the form of a list of grid references, or both written to file and printed as a list.

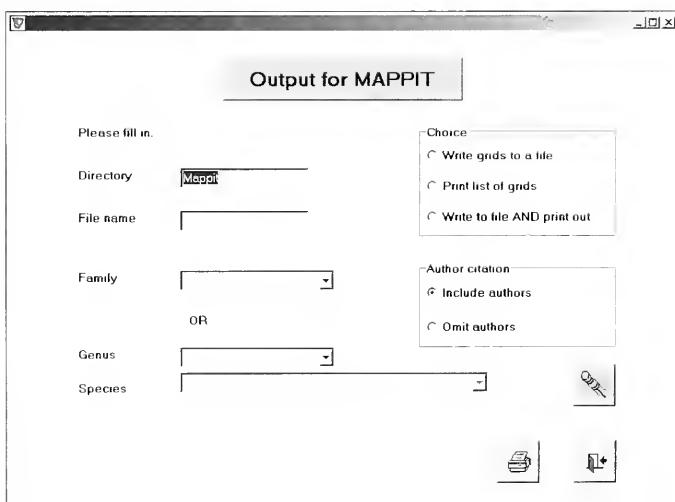


Fig. 63. Output for Mappit form.

Output for MAPPIT form

Directory

Enter the name of the directory to which the grid reference file must be written. The default directory is C:\MAPFILES.

Note: If the grid reference file is to be written to a directory other than the default directory, ensure that this directory has been created, i.e. ensure that the path is valid.

File name

Enter a name for the grid reference file. The recommended format is to use the first three letters of the genus name followed by the first five letters of the species name, with 'pnt' as the extension. For example, the file name of *Celtis africana* would be celafric.pnt.

Family

Enter this field if distribution records for the entire family are required. To enter the family name, either click in the **Family** field or on the associated down arrow. Enter the first 3-4 letters of the family name. An alphabetical list of families will appear and the first family starting with the letters entered, will be highlighted. Click on the required name to insert it into the **Family** field. Leave the **Genus** and **Species** fields blank.

Genus

To enter the genus name, either click in the **Genus** field or on the associated down arrow. Enter the first 3-4 letters of the genus name. An alphabetical list of genera will appear and the first genus starting with the letters entered, will be highlighted. Click on the required name to insert it into the **Genus** field. If grids are required for the genus only, leave the **Species** and **Family** fields blank.

Species

To enter the taxon (species or infraspecific) name, click on the down arrow at the right end of the **Species** field. An alphabetical list of taxa in the selected genera will appear. If necessary, use the scroll bar to find the appropriate taxon. Click on the required name to insert it into the **Species** field.

Choice section

Choice	—
<input type="checkbox"/>	Write grids to a file
<input type="checkbox"/>	Print list of grids
<input type="checkbox"/>	Write to file AND print out

Write grids to a file

Grids are written to the file specified above under File name, in the directory selected above under Directory.

Print list of grids

Grids are printed out as a list, rather than written to a file. Fig. 64 illustrates the format of such a list.

Write to file AND print out

Grids are written to the file specified above in the **File name** field and in the directory (folder) specified in the **Directory** field, and printed out as a list.

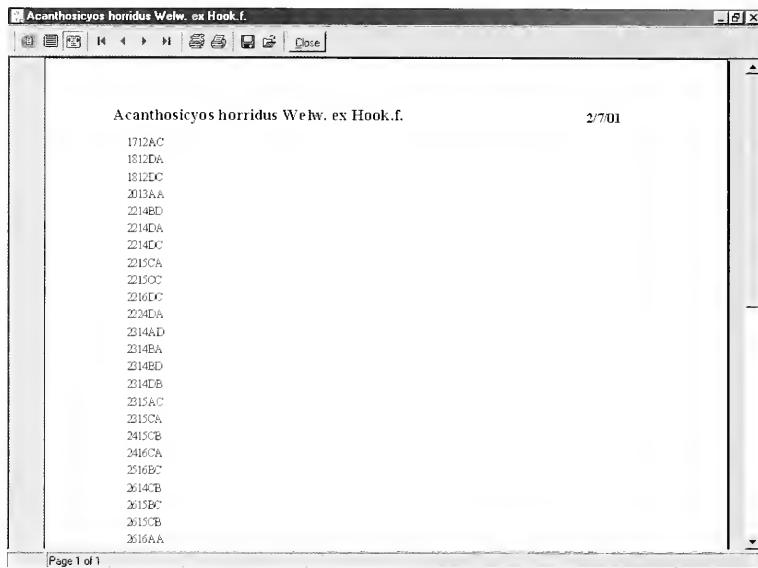


Fig. 64. Format of output from 'Print list of grids' Mappit Report option.

Author citation
<input checked="" type="checkbox"/> Include authors
<input type="checkbox"/> Omit authors

Allows users to select whether plant names should include author citations or not. Click in the appropriate field to tag the required option.

Click on  to process the report.

Click on  to return to the *Reports* menu.

Click on  to return to the *Specimen Database* menu.

5.2 No Grids

No Grids Accesses the *Specimens without Grids* form (Fig. 65). This runs a report to generate a list of specimens which do not have a grid reference. If possible, grid references may then be allocated to these specimens. The user selects the specific specimens and specifies whether the specimens must have a collection locality, no locality, or whether they can be with or without a locality.

Specimens without Grids

Please select:

CAS	Herbarium	Number (first)	Number (last)	OR	Choice
	UZL				<input type="radio"/> ALL records

OR

Family	<input type="text"/>	Range
		<input type="radio"/> With no locality
		<input checked="" type="radio"/> With a locality
		<input type="radio"/> Both

OR

Genus	<input type="text"/>	
-------	----------------------	--

OR

Species (optional)	<input type="text"/>	
-----------------------	----------------------	--

OR

Collector	<input type="text"/>	
-----------	----------------------	--

Fig. 65. Specimens without Grids form

Specimens without Grids form

CAS (Computer Accession String)

Enter the CAS herbarium code, together with the first and last CAS numbers where a range of specimens is to be included in the output, e.g. PRE 456A.1 to 462.1. Leave the rest of the fields blank.

Family

Enter this field if the output is to be restricted to a single family. To enter the family name, either click in the **Family** field or on the associated down arrow. Enter the first 3-4 letters of the family name. An alphabetical list of families will appear and the first family starting with the letters entered, will be highlighted. Click on the required name to insert it into the **Family** field. Leave the rest of the fields blank.

Genus

To enter the genus name, either click in the **Genus** field or on the associated down arrow. Enter the first 3-4 letters of the genus name. An alphabetical list of genera will appear and the first genus starting with the letters entered, will be highlighted. Click on the required name to insert it into the **Genus** field. If specimens without grids are required for the genus only, leave the **Family**, **Species** and **Collectors** fields blank. Where the output is to be restricted to a single species, enter both the genus and species names without the family name (see **Species** below).

Species

Enter this field, together with the **Genus** field, if the output is to be restricted to a single species. To enter the taxon (species or infraspecific) name, click on the down arrow at the right end of the **Species** field. An alphabetical list of taxa in the selected genera will appear. If necessary, use the scroll bar to find the appropriate taxon. Click on the required name to insert it into the **Species** field.

Collector

Enter this field if the output is to be restricted to a single collector. To enter the collector's name, either click in the **Collector** field or on the associated down arrow. Enter the first 3-4 letters of the

collector's name. An alphabetical list of collectors will appear and the first collector's name starting with the letters entered, will be highlighted. Click on the required name to insert it into the **Collector** field. Leave the rest of the fields blank.

Choice selection

Click in the appropriate field to tag the required option.

Click on  to process the report.

Click on  to return to the *Reports* menu.

Click on  to return to the *Specimen Database* menu.

16.3 New Checked

Not Checked Accesses the *New Specimens not checked* form (Fig. 66). This runs a report to generate a list of all specimens in a batch, which have not been checked (not flagged as having undergone quality control). These lists may then be printed and used to check the accuracy of encoded information in the database against the original collector's labels.

New Specimens not checked

Please select:

Batch	Number (first)	Number (last)	OR	Choice
	to			<input type="checkbox"/> ALL records
OR				
Family	<input type="button" value="▼"/>			
OR				
Genus	<input type="button" value="▼"/>			
Species (optional)	<input type="button" value="▼"/>			
OR				
Collector	<input type="button" value="▼"/>			
<input style="border: 1px solid black; padding: 2px 10px; margin-right: 10px;" type="button" value="Diskette"/> <input style="border: 1px solid black; padding: 2px 10px;" type="button" value="Back"/>				

Fig. 66. *New Specimens not checked* form.

New Specimens not checked form

Batch

Enter the first and last batch numbers representing the range of batches to be included in the output. Where only a single batch is required, enter the batch number in both number fields. Leave the rest of the fields blank.

Family

Enter this field if the output is to be restricted to a single family. To enter the family name, either click in the **Family** field or on the associated down arrow. Enter the first 3-4 letters of the family name. An alphabetical list of families will appear and the first family starting with the letters entered, will be highlighted. Click on the required name to insert it into the **Family** field. Leave the rest of the fields blank.

Genus

To enter the genus name, either click in the **Genus** field or on the associated down arrow. Enter the first 3-4 letters of the genus name. An alphabetical list of genera will appear and the first genus starting with the letters entered, will be highlighted. Click on the required name to insert it into the **Genus** field. If the specimens not checked are required for the genus only, leave the rest of the fields blank. Where the output is to be restricted to a single species, enter both the genus and species names without the family name (see **Species** below).

Species

Enter this field, together with the **Genus** field, if the output is to be restricted to a single species. To enter the taxon (species or infraspecific) name, click on the down arrow at the right end of the **Species** field. An alphabetical list of taxa in the selected genera will appear. If necessary, use the scroll bar to find the appropriate taxon. Click on the required name to insert it into the **Species** field.

Collector

Enter this field if the output is to be restricted to a single collector. To enter the collector's name, either click in the **Collector** field or on the associated down arrow. Enter the first 3-4 letters of the collector's name. An alphabetical list of collectors will appear and the first collector's name starting with the letters entered, will be highlighted. Click on the required name to insert it into the **Collector** field. Leave the rest of the fields blank.

Click on  to process the report.

Click on  to return to the *Reports* menu.

Click on  to return to the *Specimen Database* menu.

5.4 Specimen Details

Specimen Details

Accesses the *Specimen Details* form (Fig. 67). This form produces a report providing specimen details for a range of CAS numbers or for selected taxa (family, genus and species) and/or collectors.

Specimen Details

Please fill in:

CAS	Herbarium	Number (first)	Number (last)	to			
OR							
Family							
OR							
Genus	Grid ref		OR				
Species							
OR							
Collector							
Multiple collectors							

Choice:

<input type="radio"/> Single taxon	<input type="radio"/> Collector
<input type="radio"/> Genus	<input type="radio"/> Collector/genus
<input type="radio"/> Family	<input type="radio"/> Grid
<input type="radio"/> CAS range	
Order by:	
<input type="radio"/> CAS number	
<input type="radio"/> Coll spmn no.	
<input type="radio"/> Genus/species	

To restrict collector's specimens to a single genus, select genus above as well

Fig. 67. Specimen Details form.

Specimen Details form

Choice section

Select the criterion to be used to print specimen details from the available options discussed below.

Single Taxon

Where the output is to be restricted to a single taxon, enter both the genus and species names without the family name (See **Genus** below). To enter the taxon (species or infraspecific) name, click on the down arrow at the right end of the **Species** field. An alphabetical list of taxa in the selected genera will appear. If necessary, use the scroll bar to find the appropriate taxon. Click on the required name to insert it into the **Species** field. Click in the **Single Taxon** field in the Choice section to tag it.

Genus

To enter the genus name, either click in the **Genus** field or on the associated down arrow. Enter the first 3-4 letters of the genus name. An alphabetical list of genera will appear and the first genus starting with the letters entered, will be highlighted. Click on the required name to insert it into the **Genus** field. Leave the rest of the fields blank. Click in the Genus field in the Choice section to tag it.

Family

Enter this field if the output is to be restricted to a single family. To enter the family name, either click in the **Family** field or on the associated down arrow. Enter the first 3-4 letters of the family name. An alphabetical list of families will appear and the first family starting with the letters entered, will be highlighted. Click on the required name to insert it into the **Family** field. Leave the rest of the fields blank. Click in the Family field in the Choice section to tag it.

CAS number range

Enter the CAS herbarium code, together with the first and last CAS numbers where a range of specimens is to be included in the output, e.g. PRE 456A.1 to 462.1. Leave the rest of the fields blank. Click in the CAS number range field in the Choice section to tag it.

Collector

Enter this field if the output is to be restricted to a single collector. To enter the collector's name, either click in the **Collector** field or on the associated down arrow. Enter the first 3-4 letters of the collector's name. An alphabetical list of collectors will appear and the first collector's name starting with the letters entered, will be highlighted. Click on the required name to insert it into the **Collector** field. Leave the rest of the fields blank. Click in the Collector field in the Choice section to tag it.

Click on **Multiple collectors** if a combination of collectors is required – a maximum of four collectors can be used.

Note: Details of specimens collected by the selected collector with one or more joint collectors will also be printed.

Collector/Genus

Prints specimen details for all specimens in a selected genus that were collected by a selected collector. Begin typing the genus name in the **Genus** field, until the required genus name appears. Repeat this procedure in the **Collector** field, until the required collector's name appears. Leave the rest of the fields blank. Click in the Collector/Genus field in the Choice section to tag it.

Grid ref

Enter this field if the output is to be restricted to a single grid reference.

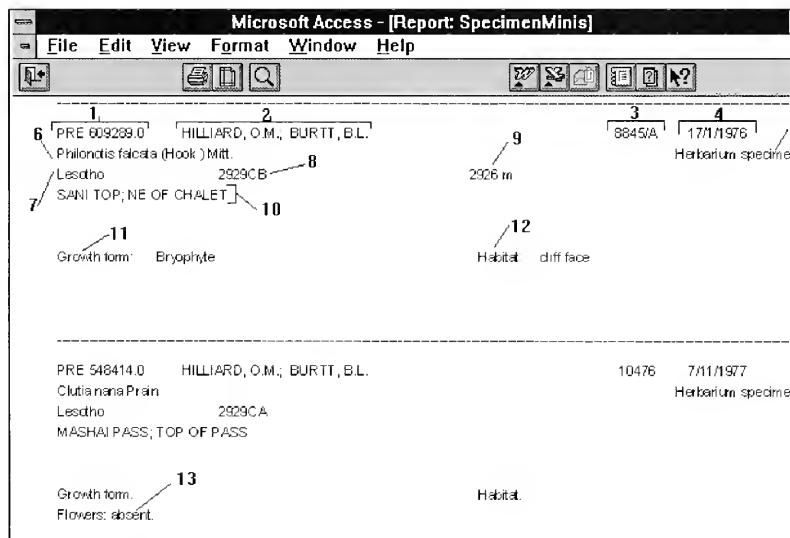


Fig. 68. Result of a report used to generate specimen details for all specimens collected by a specific collector. See [Output annotation](#) below for additional information.

Output annotation

1. CAS (Herbarium, Number, Extension, Sheet)
2. Collector/s
3. Collector's number
4. Date of specimen collection
5. Material type

Output annotation (cont.)

6. Species name and authority
7. Major collection locality
8. Grid reference
9. Altitude
10. Precise collection locality
11. Growth form
12. Habitat
13. Flowering status

Note: The report output format for all reports selected from the Choice section is similar to Fig. 68 above.

Click on  to process the report.

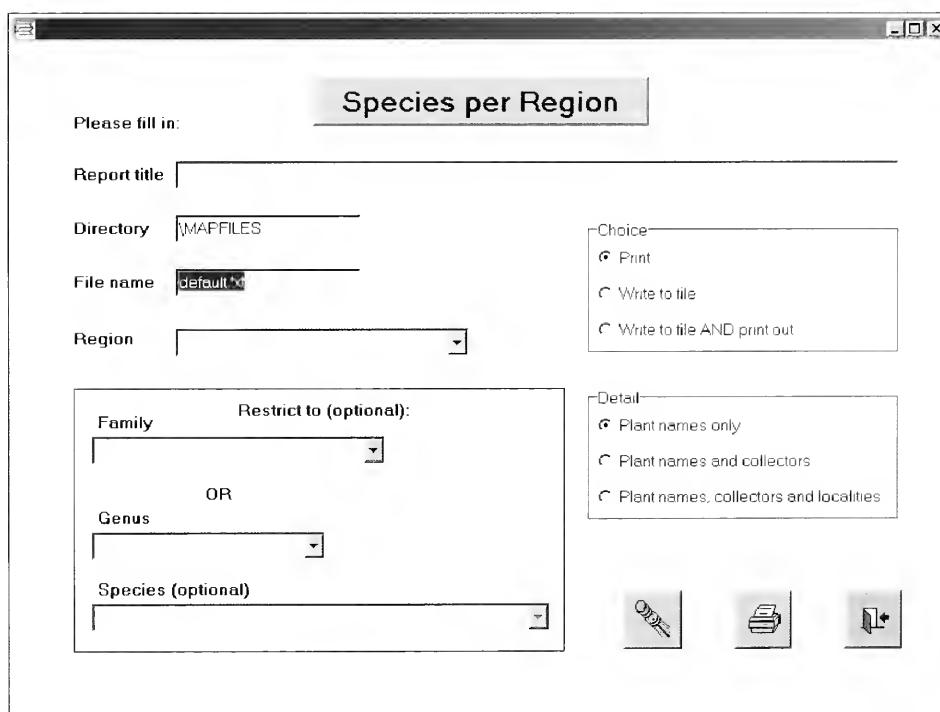
Click on  to return to the *Reports* menu.

Click on  to return to the *Specimen Database* menu.

5.5 Species per Region

Species per Region

Accesses the *Species per Region* form (Fig. 69). This runs a report to generate a checklist of taxa within a specific region.



Please fill in:

Report title

Directory

File name

Region

Choice:

Print

Write to file

Write to file AND print out

Detail:

Plant names only

Plant names and collectors

Plant names, collectors and localities

Family Restrict to (optional):

OR

Genus

Species (optional)

Fig. 69. *Species per Region* form.

Species per Region form

Report title

Enter the title to appear at the top of the report.

Directory

Enter the name of the directory to which the output file must be written. The default directory is C:\MAPFILES.

Note: If the output file is to be written to a directory other than the default directory, ensure that this directory has been created, i.e. ensure that the path is valid.

File name

Enter a name for the output file.

Region

To enter the region name, either click in the **Region** field or on the associated down arrow. Enter the first 3-4 letters of the region name. An alphabetical list of regions will appear and the first region starting with the letters entered, will be highlighted. Click on the required name to insert it into the **Region** field.

Restrict to (Optional): Family

Enter this field if the output should be restricted to a single family. To enter the family name, either click in the **Family** field or on the associated down arrow. Enter the first 3-4 letters of the family name. An alphabetical list of families will appear and the first family starting with the letters entered, will be highlighted. Click on the required name to insert it into the **Family** field.

Restrict to (Optional): Genus

Enter this field if the output should be restricted to a single genus. To enter the genus name, either click in the **Genus** field or on the associated down arrow. Enter the first 3-4 letters of the genus name. An alphabetical list of genera will appear and the first genus starting with the letters entered, will be highlighted. Click on the required name to insert it into the **Genus** field.

Restrict to (Optional): Species

Enter this field, together with the **Genus** field, if the output should be restricted to a single species. To enter the taxon (species or infraspecific) name, click on the down arrow at the right end of the **Species** field. An alphabetical list of taxa in the selected genera will appear. If necessary, use the scroll bar to find the appropriate taxon. Click on the required name to insert it into the **Species** field.

Choice section

Click in the appropriate field to tag the required option.

Click on  to process the report.

Click on  button to return to the *Reports* menu.

Click on  to return to the *Specimen Database* menu.

5.6 Accession Register

Accession Register

Accesses the *Accession Register* form (Fig. 70). This runs a report that generates a printed register of specimens accessioned into the herbarium. The register includes the CAS number (Herbarium number), entry date, plant name, collector, collector's specimen number, collection date, locality keywords and province.

Herbarium	Number (first)	Number (last)	Date
CAS	UZL	to	2005/05/25

Locality

Use locality field

Use locality keywords

Fig. 70. Accession Register form.

Accession Register form

CAS

The herbarium code of current herbarium is automatically inserted by the system.

Number (first)

Enter the first CAS number of the range of specimens to be included in the report.

Number (last)

Enter the last CAS number of the range of specimens to be included in the report.

Date

The date the report was generated is automatically inserted by the system.

Choice section

Click in the appropriate field to tag the required option

Click on to process the report.

Click on to return to the Reports menu.

Click on to return to the Specimen Database menu.

5.7 Species per Grid

Species per Grid

Accesses Species per Grid form (Fig. 71). This runs a report to generate a checklist of plant species collected within a specific grid.

Fig. 71. Species per Grid form.

Species per Grid form

Directory

Enter the name of the directory to which the output file must be written. The default directory is C:\.

Note: If the output file is to be written to a directory other than the default directory, ensure that this directory has been created, i.e. ensure that the path is valid.

File name

Enter a name for the output file. The recommended format is to use the Grid reference with 'txt' as the extension. For example, the file name of 2528AC would be 2528AC.txt.

Grid ref

Enter a grid reference (1/4, 1/2 or full degree, i.e. 2631DA, 2631D or 2631) for which a species list is to be generated.

Optional: Family

Enter this field if the output should be restricted to a single family. To enter the family name, either click in the **Family** field or on the associated down arrow. Enter the first 3-4 letters of the family name. An alphabetical list of families will appear and the first family starting with the letters entered, will be highlighted. Click on the required name to insert it into the **Family** field.

Optional: Genus

Enter this field if the output should be restricted to a single genus. To enter the genus name, either click in the **Genus** field or on the associated down arrow. Enter the first 3-4 letters of the genus name. An alphabetical list of genera will appear and the first genus starting with the letters entered, will be highlighted. Click on the required name to insert it into the **Genus** field.

Click on  to process the report.

Click on  to return to the *Reports* menu.

Click on  to return to the *Specimen Database* menu.

5.8 Species List

Species List Accesses the *Species List* form (Fig. 72). This report generates a list of species within a specific taxon, namely family and genus. The option also exists to extract a list of synonyms for a single species.

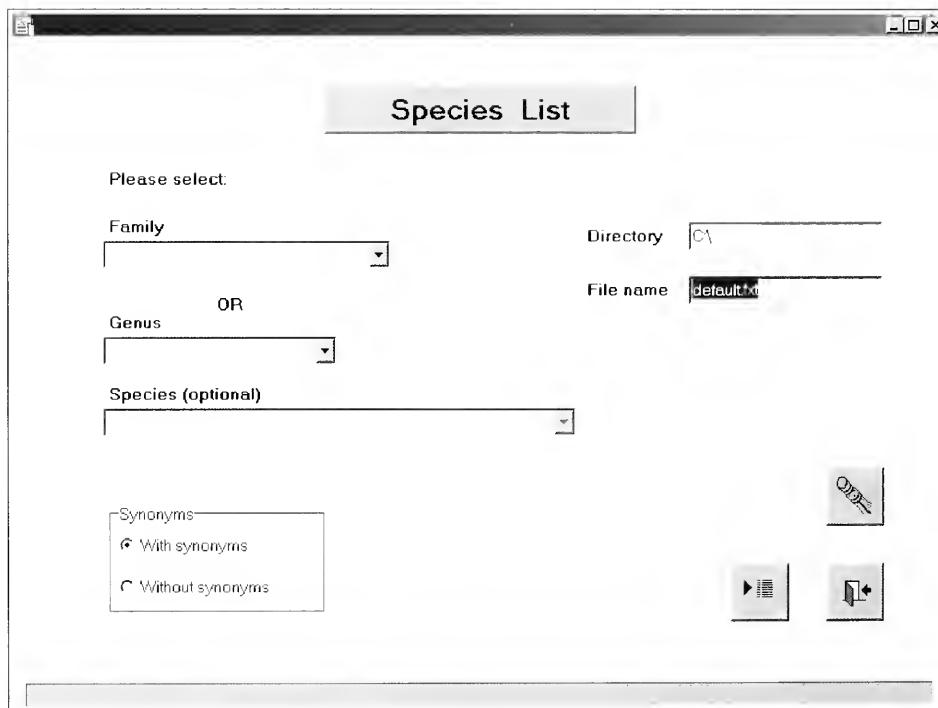


Fig. 72. *Species List* form.

Species List form

Family

Enter this field if the output is to be restricted to a single family. To enter the family name, either click in the **Family** field or on the associated down arrow. Enter the first 3-4 letters of the family name. An alphabetical list of families will appear and the first family starting with the letters entered, will be highlighted. Click on the required name to insert it into the **Family** field. Leave the **Genus** and **Species** fields blank.

Genus

To enter the genus name, either click in the **Genus** field or on the associated down arrow. Enter the first 3-4 letters of the genus name. An alphabetical list of genera will appear and the first genus starting with the letters entered, will be highlighted. Click on the required name to insert it into the **Genus** field. Where the output is to be restricted to a single species, enter both the genus and species names without the family name (see **Species** below).

Species

To enter the taxon (species or infraspecific) name, click on the down arrow at the right end of the **Species** field. An alphabetical list of taxa in the selected genera will appear. If necessary, use the scroll bar to find the appropriate taxon. Click on the required name to insert it into the **Species** field.

Directory

Enter the name of the directory to which the output file must be written. The default directory is **CA**.

Note: If the output file is to be written to a directory other than the default directory, ensure that this directory has been created, i.e. ensure that the path is valid.

File name

Enter a name for the output file.

Choice section

Click in the appropriate field to tag the required option

Click on  to process the report.

Click on  to return to the *Reports* menu.

Click on  to cancel the selection and return to the *Specimen Database* menu.

5.9 Special/API Reports

Special/API Reports

Accesses the *API Reports* form (Fig. 73). This report is used to select the type of API Report needed.

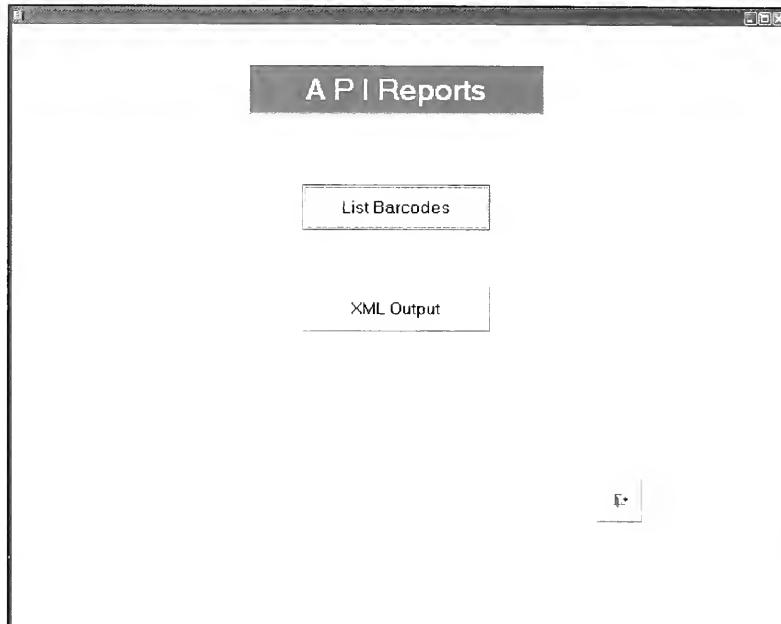


Fig. 73. API Reports form.

List Barcodes

Accesses the *List BarCodes for Printing* form (Fig. 74).

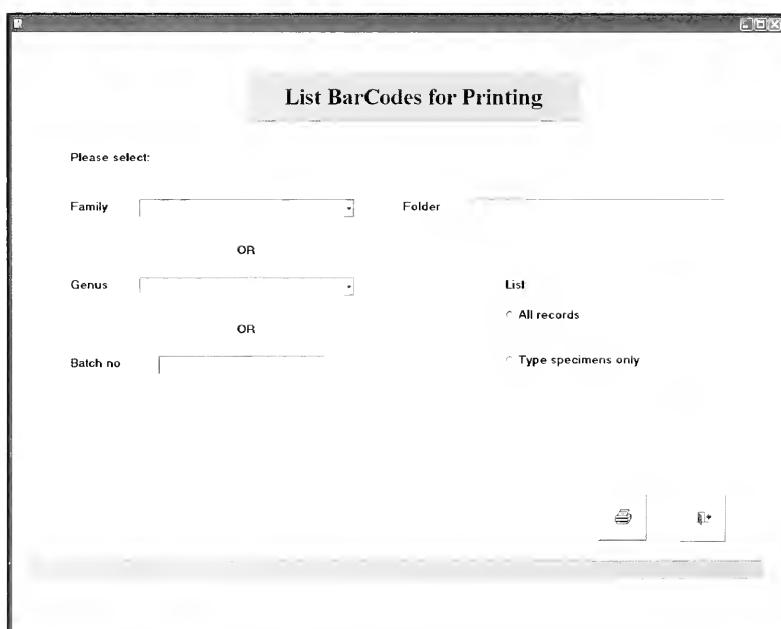


Fig. 74. List Barcodes for Printing form.

List Barcodes for Printing form

Family

To enter the family name, either click in the **Family** field or on the associated down arrow. Enter the first 3-4 letters of the family name. An alphabetical list of families will appear and the first family starting with the letters entered, will be highlighted. Click on the required name to insert it into the **Family** field.

Genus

To enter the genus name, either click in the **Genus** field or on the associated down arrow. Enter the first 3-4 letters of the genus name. An alphabetical list of genera will appear and the first genus starting with the letters entered, will be highlighted. Click on the required name to insert it into the **Genus** field.

Batch no

Enter batch number.

Choice section

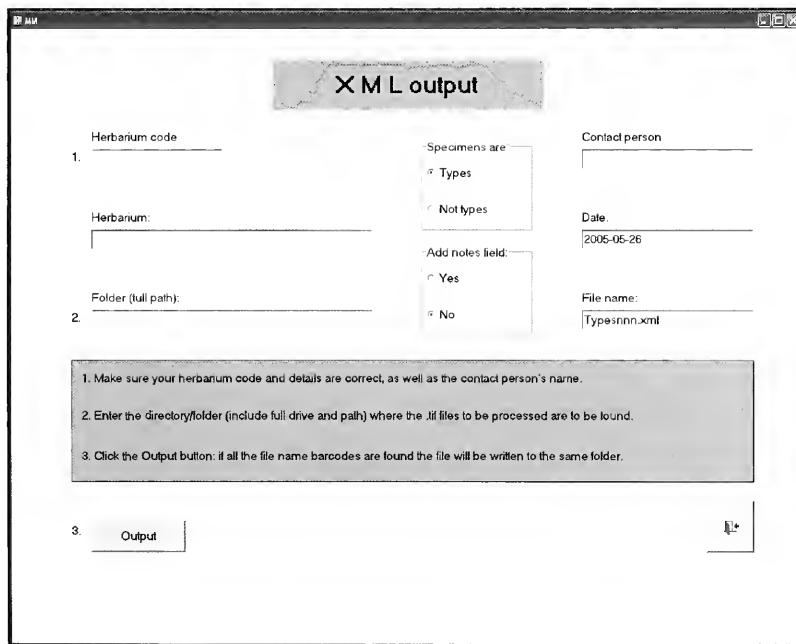
Click in the appropriate field to tag the required option

Click  to process the report.

Click  to return to the *API Reports* menu.

XML Output

Accesses the *XML output* form (Fig. 75).



The screenshot shows the 'XML output' form window. The window title is 'XML output'. The form contains the following fields and controls:

- Herbarium code:** A text input field with the number '1.'
- Herbarium:** A text input field.
- Folder (full path):** A text input field with the number '2.'
- Specimens are:** A dropdown menu with two options:
 - Types
 - Not types
- Add notes field:** A dropdown menu with two options:
 - Yes
 - No
- Contact person:** A text input field.
- Date:** A text input field showing the date '2006-05-26'.
- File name:** A text input field showing the file name 'Typesnnn.xml'.

Below the form, a gray box contains the following instructions:

1. Make sure your herbarium code and details are correct, as well as the contact person's name.
2. Enter the directory/folder (include full drive and path) where the .tif files to be processed are to be found.
3. Click the Output button: if all the file name barcodes are found the file will be written to the same folder.

At the bottom left of the form, there is a button labeled 'Output' with a small icon to its right.

Fig. 75. *XML output* form.

XML Output form

Herbarium code and name

Enter the correct Herbarium code and name.

Contact person

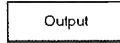
Enter the appropriate name.

Folder

Enter the directory and folder name to which the output file must be written.

Choice section

Click in the appropriate field to tag the required option

Click  to process the report.

Click  to return to the *API Reports* menu.

Chapter 6

Import/Export

Import/Export

Import / Export Accesses the *Import/Export* menu (Fig. 76), used to transfer specimen information between databases. Two protocols are used - PRECIS (Pretoria Computerized Information System) and Hispid 3 (Herbarium Information Standards and Protocols for Interchange of Data). PRECIS is an in-house protocol developed specifically to go with this database. Hispid is an international accession-based interchanged standard for the interchange of electronic herbarium information.



Fig. 76. Import/Export menu.

6.1 PRECIS

This protocol allows information for existing specimens to be captured on a second separate computer and moved (exported and then imported) via files to the main computer (See Fig. 77). The information can then be incorporated into the main (existing) Specimen table, where CAS values are assigned. Click on the appropriate option to import or export as required.

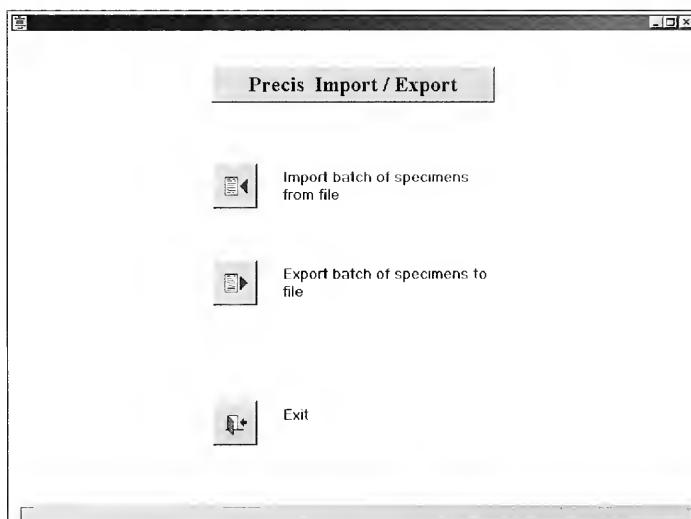


Fig. 77. Precis Import/Export menu.

Import batch of specimens from file

 Used to import (copy) a batch of specimens from a file(s). When the Input/Output drive prompt: 'Please indicate input drive/directory' is displayed, enter the appropriate drive (e.g. 'A:', 'B:', 'D:'), and select 'OK'. If the batch is successfully imported, the message 'OK, batch x imported' appears. Select 'OK' to return to the *PRECIS Import/Export* menu.

Export batch of new specimens to file

 Used to export (copy) a batch of specimen records stored in "New Specimens" to a file (stiffy or Zip drive). When the Export Batch prompt: 'Batch number to export?' is displayed, enter the required batch number containing the specimens to be exported, and click 'OK'. Next the Input/Output drive prompt: 'Please indicate output drive/directory' will be displayed. Enter the appropriate drive (e.g. 'A:', 'B:', 'D:'). If the batch is successfully exported, the message 'OK, batch exported to...' will appear. Select 'OK' to return to the *PRECIS Import/Export* menu.

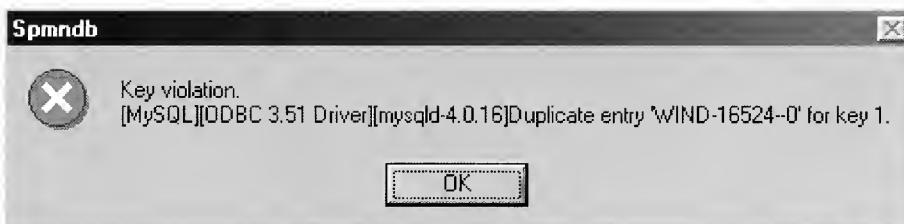
Click on  to return to the *Specimen Database* menu.

6.2 HISPID 3

Import specimens from file

 Used to import (copy) specimens records from a file. When the 'Input file name' prompt is displayed, enter the appropriate drive (e.g. 'A:', 'B:', 'D:'), followed by the file name (including file extension) and select 'OK'. A *Hispid3 specimen input* form appears where the sender's information is displayed. To continue, click the Import button. If the batch is successfully imported, the message 'OK' will appear. Select 'OK' to return to the *Hispid3 Import/Export* menu.

Note: If the following error message appears, the database already contains specimens with the same accession numbers.



Note: If the following error message appears, it is because an error file with the displayed name already exists. Change the name of the existing error file in the *Hispid3 specimen input* form.





Used to export (copy) specimens to a file (stiffy or Zip drive). When the *Specimen output in Hispid format* form is displayed, fill in the three pages included in the form, namely:

- Page 1 – Sent by;
- Page 2 – Details of file to be sent;
- Page 3 – Record selection.

Note: If no information is entered on page 2, default values will be used.



Click on to continue. If the specimens are successfully exported, select 'OK' to return to the *Hispid3 Import/Export* menu.



Click on to return to the *Specimen Database* menu.

Chapter 7

Look-up Tables

Look-up Tables

Look Up Tables

Accesses the *Look-Up Tables* menu (Fig. 78), which is used to add a new record to a selected table, e.g. to add a new collector's name to the 'Collectors' table, or a new habitat type to the 'Habitats' table. Look-Up tables are data dictionaries or standardised lists of variables, e.g. habitat types, that can be accessed from the various database forms and sub-forms, e.g. the *Collectors* and *Habitats* forms in the above examples. For a list of all database tables, see Appendix 3, p. 150.

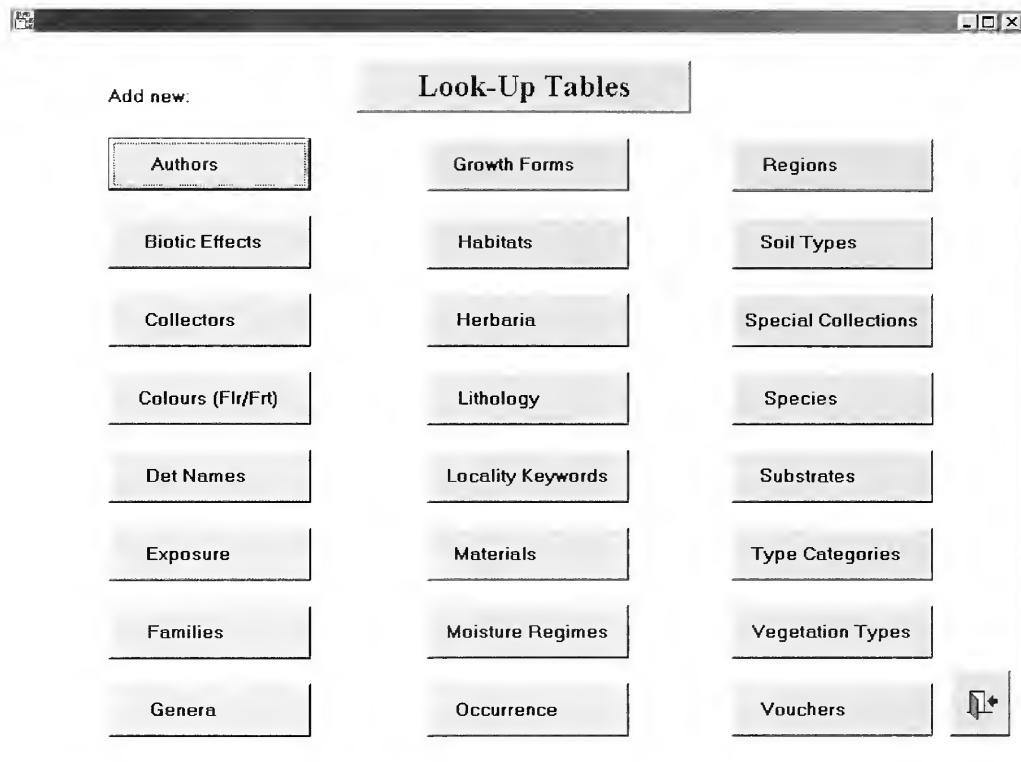


Fig. 78. Look-Up Tables menu.

Look-up Tables menu

7.1 Authors

Authors

Accesses the *Authors* form (Fig. 79), for adding a new author record into the 'Authors' table.

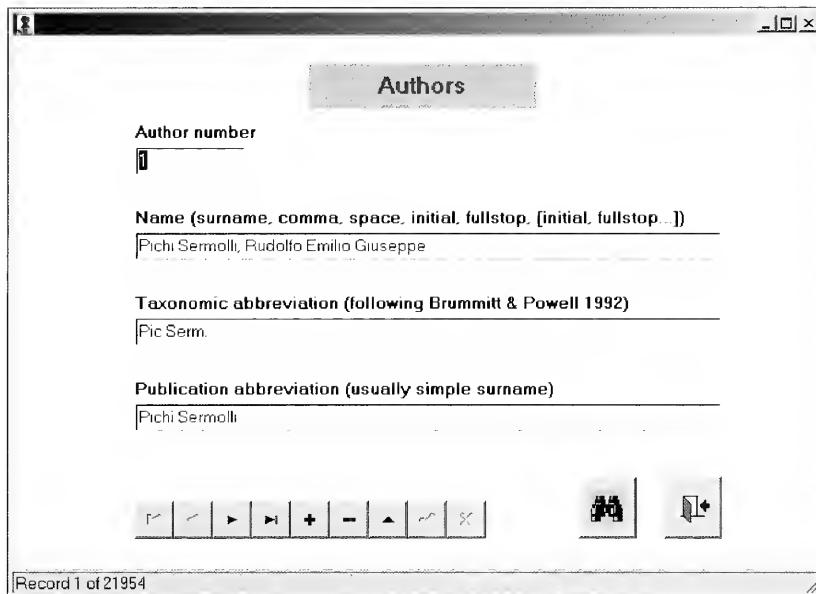


Fig. 79. Authors form.

Authors form

Author no

Click on to create a new record with the next available author number inserted automatically.

Name

Enter the author's surname, followed by a comma and the author's name/s, e.g. Smith, Roger Westsel.

Taxonomic abbreviation

Refer to *Authors of Plant Names*³ for the author abbreviation. If the author is not listed in this publication, then enter the initials and full surname, e.g. R.S. Woods.

Publication abbreviation

Enter the author abbreviation used in publications. This is usually just the author's surname.

Note: To verify that the new author name is not already listed in the 'Authors' table, use the Find Button

Click on to return to the Look-Up Tables menu.

³ Brummit and Powell (1992)

7.3 Biotic Effects

Biotic Effects Accesses the *Biotic Effects* form (Fig. 80), for adding a new biotic effect record into the 'Biotics' table.
 [Biotic effect - the effect of living organisms (e.g. animals or man) and fire on the vegetation]

Fig. 80. *Biotic Effects* form.

Biotic Effects Form

Number

Click on to create a new record with the next available biotic effects number inserted automatically.

Description

Enter the new biotic effect in lower case.

Note: To verify that the new biotic effect is not already listed in the 'Biotics' table, use the Find Button

Click on to return to the *Look-Up Tables* menu.

7.3 Collectors

Collectors Accesses the *Collectors* form (Fig. 81), for adding a new collector record into the 'Collectors' table.

Number

Name (surname, comma, space, initial, fullstop, [initial, fullstop...])

De Winter, B

Qualifier (for duplicated names)

eg first name, collection locality or year etc.

Record 1 of 13221

Fig. 81. *Collectors* form.

Collectors form

Collector no

Click on to create a new record with the next available collector number inserted automatically.

Name

Enter the new collector's name in the following sequence: Surname, comma, space, initial, full stop (initial, full stop etc.) e.g. Derrick William Roberts would be: Roberts, D.W.

Qualifier

Enter any additional information for duplicate names.

Note: To verify that the new collector is not already listed in the 'Collectors' table, use the Find Button

Click on to return to the *Look-Up Tables* menu.

7.4 Colours (Flr/Frt)

Colours (Flr/Frt)

Accesses the *Colours (Flower/Fruit)* form (Fig. 82), for adding a new colour record into the 'Colours' table.

Fig. 82. *Colours (Flower/Fruit)* form.

Colours (Flower/Fruit) form

Number

Click on to create a new record with the next available colour number inserted automatically.

Colour

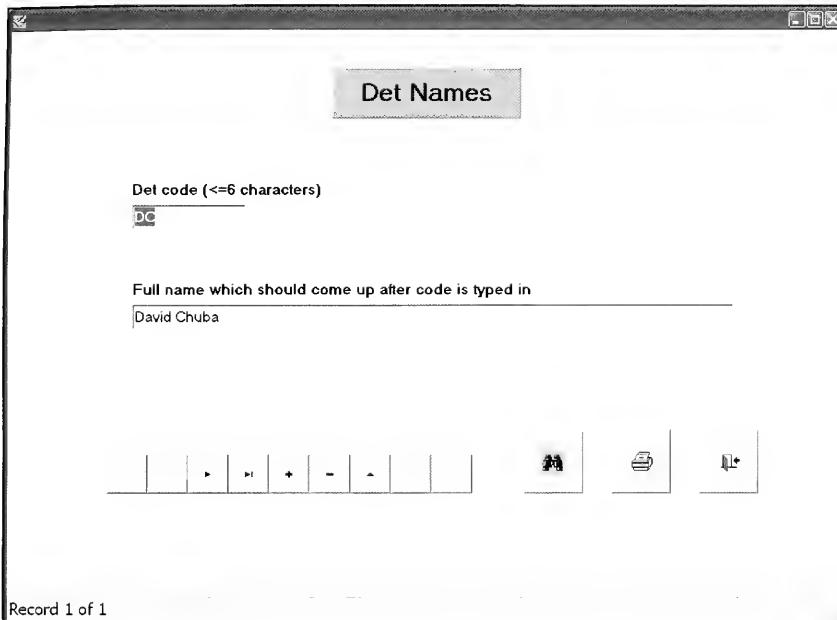
Enter the new colour in lower case.

Note: To verify that the new colour is not already listed in the 'Colours' table, use the Find Button.

Click on to return to the *Look-Up Tables* menu.

7.5 Det Names

Det Names Accesses the *Det Names* form (Fig. 83), for adding a new determinavit record into the 'Dets' table. Currently, it is possible to type the determinavit name into the **Det** field on the *New Specimens* data entry form or by recalling it from the look-up table.



Det Names

Det code (<=6 characters)
DC

Full name which should come up after code is typed in
David Chuba

Record 1 of 1

Fig. 83. *Det Names* form.

Det Names form

Number

Click on  to create a new empty record.

Det code

Enter the code for the new determinavit name.

Full name to come up when code is typed in

Enter the full name of the determinavit. Enter initial/s, followed by surname.

Note: To verify that the new Det name is not already listed in the 'Dets' table, use the  Find Button

Click on  to return to the *Look-Up Tables* menu.

To EXPOSURE

Exposure Accesses the *Exposure* form (Fig. 84), for adding a new exposure record into the 'Exposure' table.
 [Exposure - extent to which a plant is exposed to sun and shade]

Number
1

Description
full sun

Record 1 of 10

Fig. 84. *Exposure* form.

Exposure Form

Number

Click on to create a new record with the next available exposure number inserted automatically.

Description

Enter the new exposure in lower case.

Note: To verify that the new exposure is not already listed in the 'Exposure' table, use the Find Button

Click on to return to the *Look-Up Tables* menu.

7.7 Families

Families Accesses the *Families* form (Fig. 85), for adding a new family record into the 'Families' table.

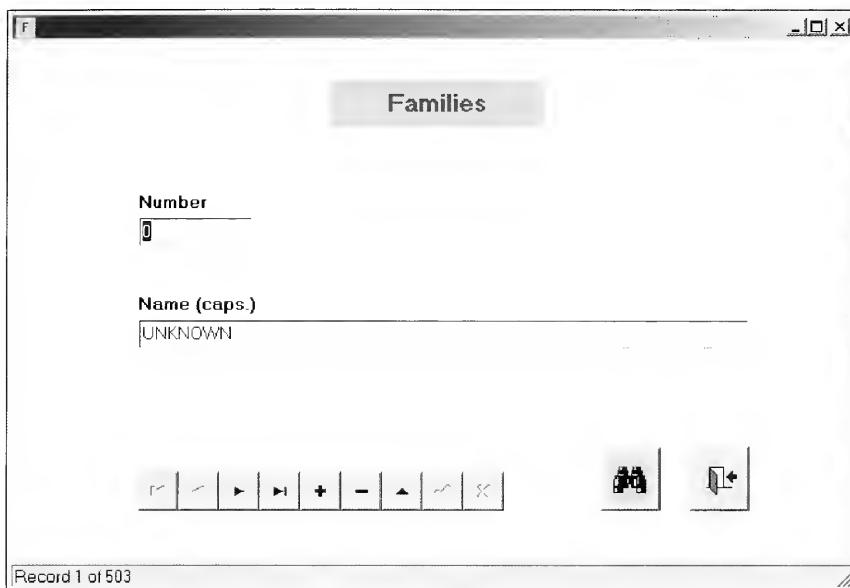


Fig. 85. *Families* form.

Families form

Family no

Click on to create a new record with the next available family number inserted automatically.

Name

Enter the new family name in CAPITALS.

Note: To verify that the new family name is not already listed in the 'Family' table, use the Find Button

Click on to return to the *Look-Up Tables* menu.

7.8 Genera

Genera	Accesses the Genera form (Fig. 86), for adding a new genus record into the 'Genera' table.	
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Genera

Number	Name (with initial capital)	Family
1	Unknown	UNKNOWN

Author no & abbreviation

0	Author Search
---	---------------

TO ADD A NEW GENUS: click the plus sign on the navigation bar. A new (temporary) number is automatically provided, in the range above 20000.

After a new number has been automatically allocated, this number can be manually replaced (overwritten) by an alternative number if required, but this is not recommended.
ALL RELATED RECORDS ARE UPDATED AUTOMATICALLY.

TO FIND AN AUTHOR: click the search button, fill in a string to look for and select an author. Close the subform and double-click on the author no field to insert the selection.

REMEMBER TO SAVE THE RECORD. On this form unsaved records are ignored.

↶ ↶ ↷ ↷ +/- - ↑ ↓ ☰

↶ ↶ ↷ ↷

Record 1 of 14082

Fig. 86. Genera form.

Genera form

Genus no

Click on + to create a new record with the next available genus number inserted automatically.

Note: A temporary number above 20 000 will be allocated, so that new genera added locally can be easily identified for incorporation as part of the main numbering system at a later stage. After a new genus number has been automatically allocated, this temporary number can be manually replaced. In such a case, all related records will be updated automatically.

Name

Enter the new genus name, starting with a capital letter.

Family

Enter the first few letters of the family corresponding to the new genus. The required family should appear.

Note: If the family has also been newly described, a new family record will have to be added to the Families table. See Chapter 7 (p. 101) for this procedure.

Author number

To find the required author name number, click on **Author Search** to access the Author search prompt. See below for additional information.

and abbreviation

Automatically inserted once the author number has been selected and inserted.

Author Search Searches for an author name. Enter the first 3-4 letters of the author's surname to access a list of all author names (combinations included) containing the search string. Click on the required authority to insert it into the **Author search** field.

Click on  to return to the *Genera* form, and double click in the **Author no.** field to insert the number. The author abbreviation is then automatically inserted in the **abbreviation** field.

Note:

1. If the authority is C.A. Smith, for example, do not include the initials as part of the search string. If the author is a combination, e.g. (Bolus) Codd, it reduces the search time if the search string '(Bol' is entered. This will limit the search to all combinations starting with '(Bol'.
2. If a mistake is made when typing in the search string, click on the  button to repeat the query.
3. If the required author is not listed, a new author record will have to be added to the 'Authors' table. See p. 94 for this procedure.

Click on  to return to the *Look-Up Tables* menu.

7.9 Growth Forms

Growth Forms

Accesses the *Growth Forms* form (Fig. 87), for adding a new growth form record into the 'Growth Forms' table.

[Growth forms - the characteristic shape or appearance of a plant]

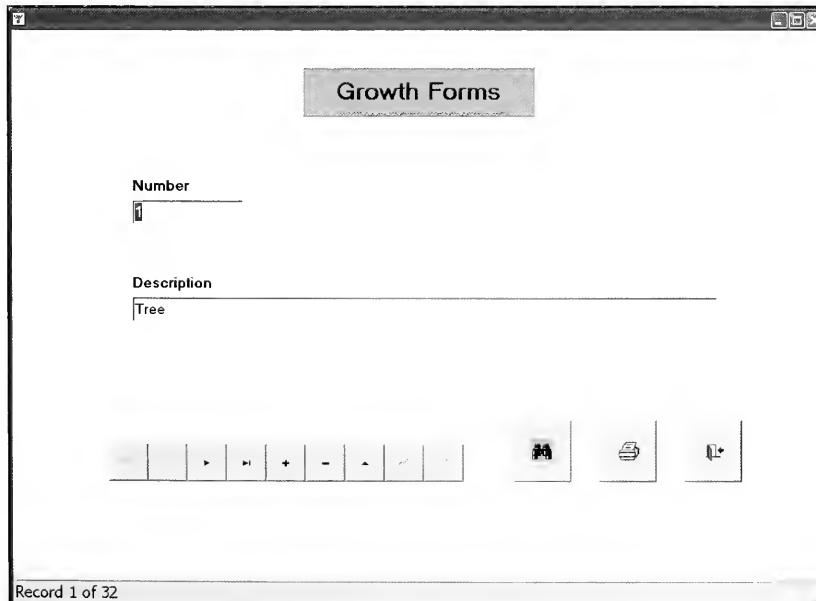


Fig. 87. *Growth Forms* form.

Growth Forms form

Number

Click on  to create a new record with the next available growth forms number inserted automatically.

Description

Enter the new growth form in lower case.

Note: To verify that the new growth form is not already listed in the 'Growth Forms' table, use the Find Button 

Click on  to return to the *Look-Up Tables* menu.

7.10 Habitats

Habitats  Accesses the *Habitats* form (Fig. 88), for adding a new habitat type into the 'Habitats' table.

[Habitats - The specific kind of environment occupied by the individuals of a species; the sum total of environmental conditions of a specific place that is occupied by an organism]



Fig. 88. Habitats form.

Habitats form

Number

Click on  to create a new record with the next available habitat number inserted automatically.

Description

Enter the new habitat name in lower case.

Note: To verify that the new habitat is not already listed in the 'Habitats' table, use the Find Button



Click on  to return to the *Look-Up Tables* menu.

7.11 Herbaria**Herbaria**

Accesses the *Herbaria* form (Fig. 89), for adding a new herbarium record and its corresponding code into the 'Herbaria' table.

Fig. 89. *Herbaria* form.

Herbaria form**Number**

Click on  create a new empty record.

Herbarium code

Enter the herbarium code, as listed in *Index Herbariorum*. If the herbarium being added is not listed in this publication, assign a six-letter local code followed by a '\$' sign, e.g. LYNTON\$. The '\$' sign indicates a non-*Index Herbariorum* code.

Herbarium name

Enter the Herbarium name, including additional information as listed in *Index Herbariorum*, e.g. United Arab Emirates Univ; Dept. of Biology, Abu Dhabi

International code

If the code assigned is a local code not listed in *Index Herbariorum*, leave this field blank. Otherwise double click in the **International code** field to tag it with an 'X'.

Note: To verify that the new herbarium is not already listed in the 'Herbaria' table, use the Find Button



Click on  to return to the Look-Up Tables menu.

7.12 Lithology

Lithology

Accesses the *Lithology* form (Fig. 90), for adding a new lithology into the 'Lithology' table.

[Lithology - The underlying bedrock below soil, often protruding in places as boulders or rocky outcrops]

Fig. 90. *Lithology* form.

Lithology form

Number

Click on  to create a new record with the next available lithology number inserted automatically.

Description

Enter the new lithology name in lower case.

Note: To verify that the new lithology is not already listed in the 'Lithology' table, use the Find Button



Click on  to return to the *Look-Up Tables* menu.

7.13 Locality Keywords

Locality Keywords

Accesses the *Locality Keywords* form (Fig. 91), for adding a new locality keyword into the 'Locality Keywords' table.

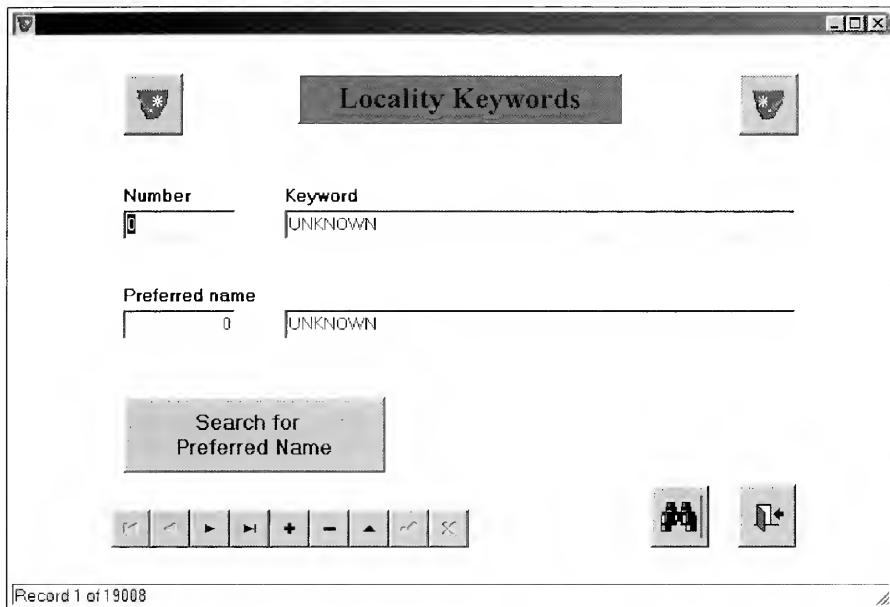


Fig. 91. *Locality Keywords* form.

Locality Keywords form



Accesses information describing the functions associated with the various buttons on the *Locality Keywords* form.

Number

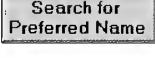
Click on  to create a new record with the next available locality keywords number inserted automatically.

Keyword

Enter the new keyword (in upper or lower case; it will automatically be converted to uppercase when it is saved).

Preferred name

This field indicates whether the new keyword is an alternative spelling or name for a more widely recognised name (e.g. the preferred name is Mfolozi River, but it may also be spelt Umfolozi River). The default value is the number and name of the new keyword entered.

To change this to reflect a preferred name, use  to search for the preferred name. See **Search for Preferred Name** below.

Search for Preferred Name:

Click on this button to access the Preferred Name search prompt. Enter the first 3-4 letters of the preferred name. A list of all preferred keywords starting with the entered string will appear. Scroll down to find the required keyword, and click on the keyword to enter it into the **Locality keyword search** field.

Click on  to return to the *Locality Keywords* form. Double click in the **Preferred name** field to insert the number of the preferred locality. The preferred name will then be inserted automatically.

Click on  to return to the *Look-Up Tables* menu.

7.14 Materials**Materials**

Accesses the *Materials* form (Fig. 92), for adding a new material type record into the 'Materials' table.



Fig. 92. *Materials* form.

Materials form

Click on  to create a new empty record.

Code

Enter the code for the new materials name.

Description

Enter the new material type starting with a capital letter.

Note: To verify that the new material type is not already listed in the 'Materials' table, use the Find Button



Click on  to return to the *Look-Up Tables* menu.

7.15 Moisture Regimes

Moisture Regimes

Accesses the *Moisture Regimes* form (Fig. 93), for adding a new moisture regime record into the 'Moistures' table.

[Moisture regime - the amount and type of water available to the plant]

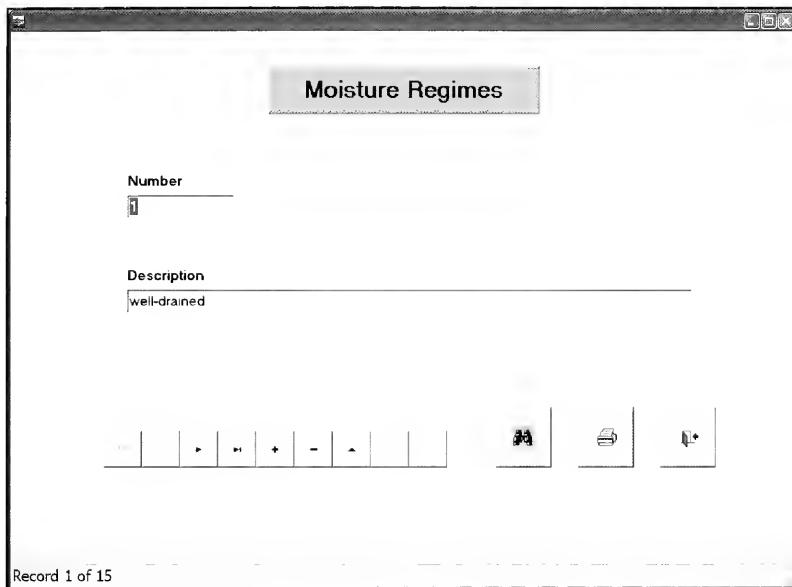


Fig. 93. *Moisture Regimes* form.

Moisture Regimes form

Number

Click on  to create a new record with the next available moisture regime number inserted automatically.

Description

Enter the new moisture regime name in lower case.

Note: To verify that the new moisture regime is not already listed in the 'Moistures' table, use the Find Button 

Click on  to return to the *Look-Up Tables* menu.

7.16 Occurrence

Occurrence

Accesses the *Occurrence* form (Fig. 94), for adding a new occurrence record into the 'Occurrence' table.
[Occurrence - abundance of plant at site of collection]

Fig. 94. Occurrence form.

Occurrence form

Number

Click on to create a new record with the next available occurrence number inserted automatically.

Description

Enter the new occurrence name in lower case.

Note: To verify that the new occurrence is not already listed in the 'Occurrence' table, use the Find Button

Click on to return to the *Look-Up Tables* menu.

7.17 Regions

Regions

Accesses the *Regions* form (Fig. 95), for adding a new region record and corresponding territory into the 'Regions' table. The system that is used follows the *World Geographical Scheme for Recording Plant Distributions*⁴.

⁴ Hollis and Brummitt (1992)

Fig. 95. Regions form.

Regions form



Accesses information describing the functions associated with the various buttons on the **Regions** sub-form, and rules for entry of a new region and territory.

Click on  to create a new empty record.

Code

Enter the three-letter code corresponding to the new region, obtained from the *World Geographical Scheme for Recording Plant Distributions*⁴. This code must be followed by a hyphen and “00” for a country (e.g. Zimbabwe = “ZIM-00”). Alternatively, the two-letter code for a lower level locality (e.g. province/district) should be entered (e.g. Botswana : Central = “BOT-CN”).

Name

Enter the full region name.

Territory

Enter the territory at the sub-continental level, e.g. southern Africa, East Tropical Africa, etc. Click on the **Territory** field to access a search prompt. Entering, ‘east’, for example, accesses a list of those territories containing ‘east’ in the name. Click on the required entry to insert it into the **Territory** field.

Name to appear on herbarium specimen labels

Enter the text string (expression) as you want it to appear on the herbarium label. Where Hollis and Brummitt (1992) give the region name as “Cunene”, the text string to appear on the label might be “Cunene, Angola”.

Note: If a mistake is made in typing the search string, then click anywhere on the form outside the **Territory** field, before clicking in the **Territory** field again to repeat the query.

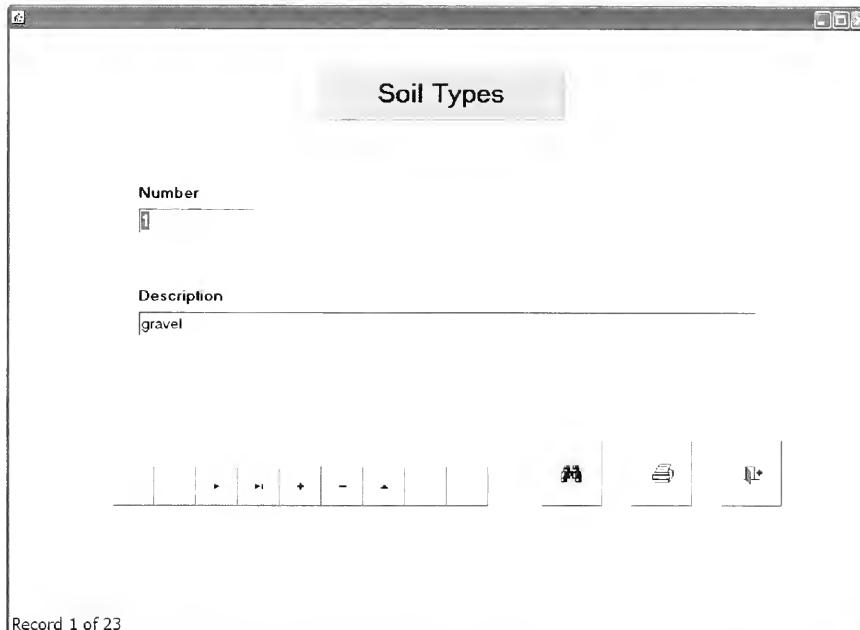
Click on  to return to the *Look-Up Tables* menu.

7.18 Soil Types

Soil Types

Accesses the *Soil Types* form (Fig. 96), for adding a new soil type record into the 'Soil Types' table.

[Soil - the layers inhabited by the root systems of vegetation]



Number
1

Description
gravel

Record 1 of 23

Fig. 96. *Soil Types* form.

Soil Types form

Number

Click on  to create a new record with the next available soil type number inserted automatically.

Description

Enter the new soil type name in lower case.

Note: To verify that the new soil type is not already listed in the 'Soil Types' table, use the Find Button 

Click on  to return to the *Look-Up Tables* menu.

7.19 Special Collections

Special Collections

Accesses the *Special Collections* form (Fig. 97), for adding a new special collection record into the 'Special Collections' table.

A special collection is a collection of specimens collected as part of a specific collecting expedition e.g. SABONET Nyika Expedition 2000 to the Nyika plateau in Malawi, or the collection of a specific group of plants by a specific collector e.g. food plants specimens collected by F.W. Fox. Sometimes these collections are stored separately from the main collection.

Fig. 97. *Special Collections* form.

Special Collections form

Click on to create a new empty record.

Code

Enter the code for the new special collection.

Name for labels

Enter the new special collection name, starting with a capital letter.

Full name or description

Enter the full name or description, starting with a capital letter.

Note: To verify that the new special collection is not already listed in the 'Special Collections' table, use the Find Button

Click on to return to the *Look-Up Tables* menu.

7.20 Species

Species

Accesses the *Species* form (Fig. 98), for adding a new taxon record into the 'Species' table. To limit the records to those within the genus in which the new taxon has been placed, the search prompt "Enter (first part of) name" appears. Enter the first 3-4 letter of the genus name. An alphabetical list of genera will appear and the first genus starting with the letters entered, will be highlighted. If the required genus name is not immediately visible, use the scroll bar to search for the name. Click on the required name to insert it into the **Genus** field.

Click on  to return to the *Species* form. The records which appear are for the species within that genus. New species can then be added.

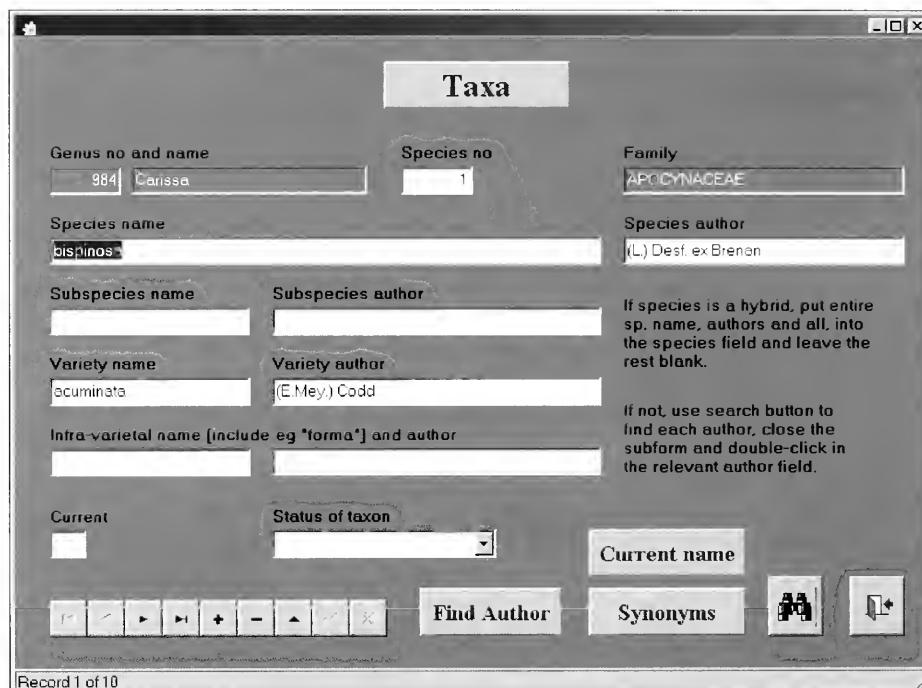


Fig. 98. Species form.

Species form

Genus no

The number corresponding to the genus name in which the new taxon is to be placed, is automatically inserted once the required genus is specified by the user.

and name

The genus in which the new taxon entry is to be made is automatically inserted once the required genus is specified by the user.

Species no

The next available number is automatically assigned once  is clicked.

Family

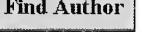
The family in which the genus is placed is automatically inserted.

Species name

Enter the new species name.

Note: 1. If the taxon to be entered is a hybrid, enter the full name, including the author/s, into the **Species name** field, and leave the remaining fields blank.
 2. If an infraspecific name is to be entered (e.g. a species has now been assigned a new subspecies), the required species record must first be located. If there are only a few species records, page through the records using  at the bottom of the sub-form.

Species author

Enter the species author. Use  to select the required author.

Subspecies name

If applicable, enter the subspecific name.

Subspecies author

Enter the subspecies author. Use  to select the required author.

Variety name

If applicable, enter the variety name.

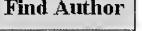
Variety author

Enter the variety author. Use  to select the required author.

Infra-varietal name

If applicable, enter any name below the variety level (e.g. forma).

and author

Enter the infra-varietal author. Use  to select the required author.

Note: If the required author is not listed, a new author record will have to be added to the Authors Look-Up table. See p. 94 for this procedure.

Current

Enter the value 'Y' in this field if the plant name entered is in current use. Otherwise leave it blank.

Status of taxon

If the name of the taxon entered is a synonym, enter the reason why the taxon name is no longer valid, e.g. illegitimate name (nom. illegit.) etc. if available. Click on the down arrow to the right of this field for a list of available options.

Find Author

Searches for an author name. Enter the first 3-4 letters of the author's surname to access a list of all names (combinations included) containing the search string.

Click on the required authority to insert it into the **Author search** field.



Click on to return to the Species form, and double click in the author (subspecies/variety/infra-varietal) field to insert the name. Repeat this procedure if e.g. varietal and infra-varietal authors are to be inserted.

Note: 1. If the authority is C.A. Smith, for example, do not include the initials as part of the search string. If the author is a combination, e.g. (Bolus) Codd, it reduces the search time if the search string 'Bol' is entered. This will limit the search to all combinations starting with 'Bol'.
 2. If a mistake is made when typing in the search string, click on the  button to repeat the query.

Current name

Accesses the *Current name* sub-form (Fig. 99), used to link a synonym(s) to the name currently in use.

Click on  to create a new record to insert a current name.

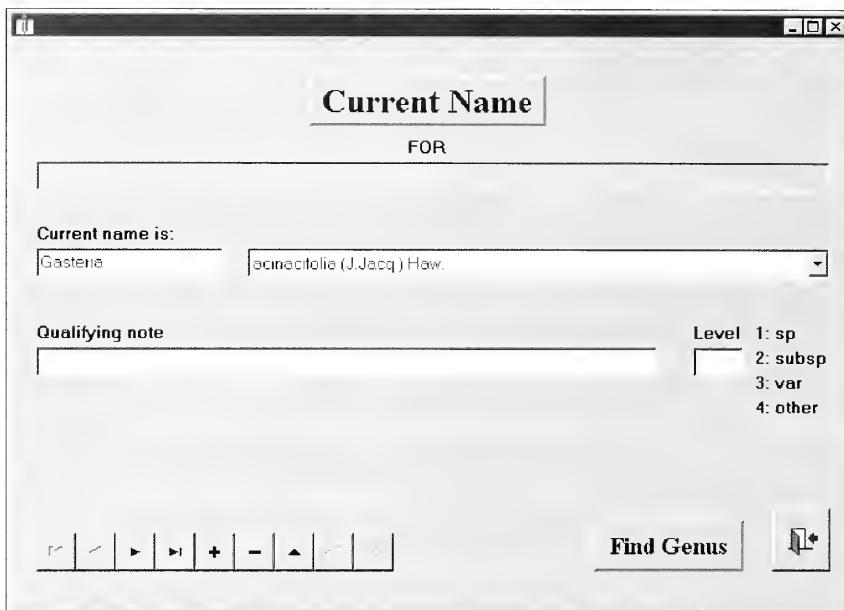


Fig. 99. *Current Name* sub-form.

Find Genus

Use **Find Genus** to search for the genus name. Enter the first 3-4 letters of the genus name. An alphabetical list of genera will appear and the first genus starting with the letters entered, will be highlighted. If the required genus name is not immediately visible, use the scroll bar to search for the name. Click on the required name to insert it into the **Genus** field.

Click on  to return to the *Species* form, and double click in the **Genus** field to insert the name.

To enter the taxon name, click on the down arrow at the right end of the right-hand field. An alphabetical list of taxa in the selected genus will appear. Click on the required name to insert it into the appropriate field.

Qualifying note

If this is not a "standard sinking" and the author supplies information on the reason for sinking the specific name e.g. p.p., quoad specimen.... etc., this additional information should be entered into the **Qualifying note** field.

Level

Indicate the level at which the qualifying note is applicable.

Click on  to return to the *Species* form.

Note: The **Qualifying note** and **Level** fields refer to the synonym.

Synonyms

Opens the *Synonyms* sub-form which displays a list of synonyms for the selected current name.

Click on  to return to the *Species* form.

Click on  to return to the *Look-Up Tables* menu.

7.21 Substrate

Substrate

Accesses the *Substrates* form (Fig. 100), for adding a new substrate type record into the 'Substrates' table.

[Substrate - the base or substance upon which an organism grows]

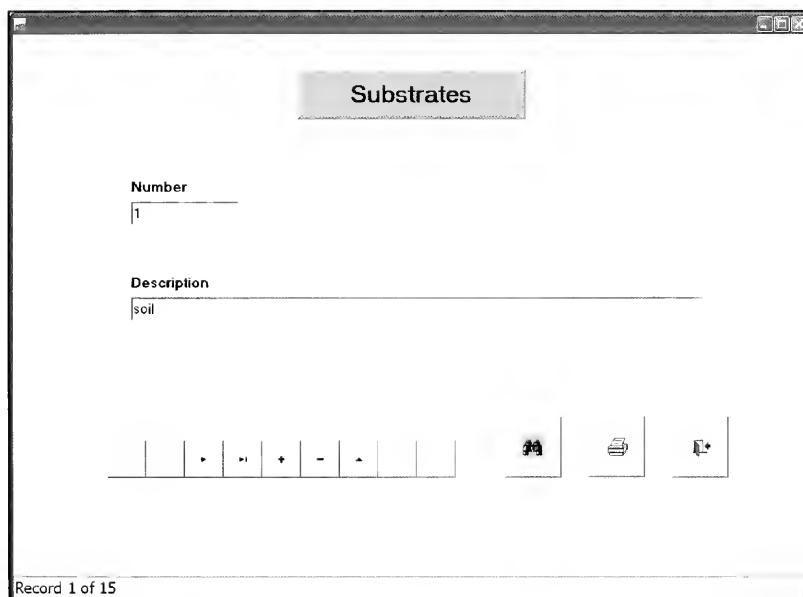


Fig. 100. *Substrates* form.

Substrates form

Number

Click on  to create a new record with the next available substrate number inserted automatically.

Description

Enter the name of the new substrate type in lower case.

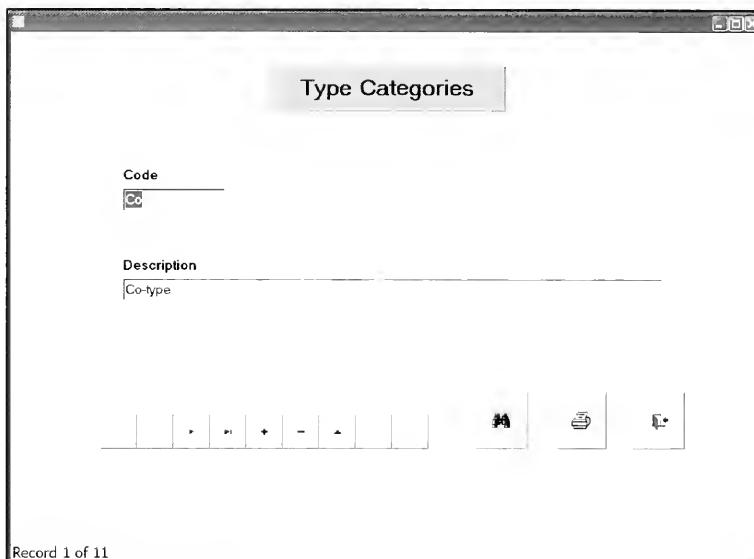
Note: To verify that the new substrate is not already listed in the 'Substrates' table, use the Find Button 

Click on  to return to the *Look-Up Tables* menu.

7.22 Type Categories

Type Categories

Accesses the *Type Categories* form (Fig. 101), for adding a new type status record into the 'TypeStatus' table.



Type Categories

Code

Co

Description

Co-type

Record 1 of 11

Fig. 101. *Type Categories* form.

Type Categories form

Click on  to create a new empty record.

Code

Enter the code for the new type category.

Description

Enter the new type status, beginning with a capital letter.

Note: To verify that the new type category is not already listed in the 'Type Status' table, use the Find Button .

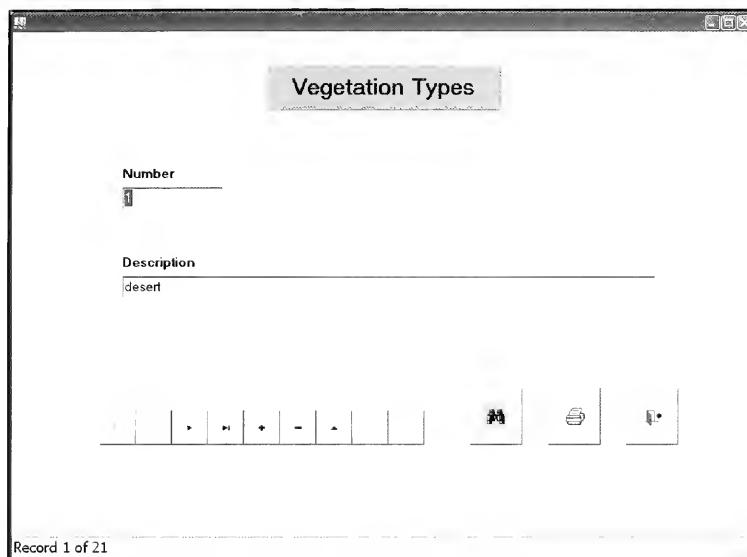
Click on  to return to the *Look-Up Tables* menu.

7.23 Vegetation Types

Vegetation Types

Accesses the Vegetation Types form (Fig. 102), for adding a new vegetation type record to the 'Vegetation Types' table.

[Vegetation type - the kind of plants growing in an area – determined primarily by growth form]



Number
1

Description
desert

Record 1 of 21

Fig. 102. Vegetation Types form.

Vegetation Types form

Number

Click on  to create a new record with the next available vegetation type number inserted automatically.

Description

Enter the new vegetation type in lower case.

Note: To verify that the new vegetation type is not already listed in the 'Vegetation Types' table, use the Find Button 

Click on  to return to the *Look-Up Tables* menu.

7.24 Vouchers

Vouchers

Accesses the *Vouchers* form (Fig. 103), for adding a new voucher record into the 'Vouchers' table.

Fig. 103. *Vouchers* form.

Vouchers form

Number

Click on to create a new record with the next available voucher number inserted automatically.

Description

Enter a description of the new voucher in lower case.

Note: To verify that the new voucher is not already listed in the 'Vouchers' table, use the Find Button

Click on to return to the *Look-Up Tables* menu.

Click on to return to the *Specimen Database* menu.

Chapter 8

Print Labels

Print Labels

Print Labels

Accesses the “Print Selection - New or Existing Specimens? N/E” prompt.

Two options are available:

Option ‘N’—to print, draft or final, labels for a batch of new specimens. See 8.1 Option ‘N’ (New Specimens), p. #.

Option ‘E’—to print labels for a prepared batch of existing specimens. See 8.2 Option ‘E’ (Existing specimens), p. #.

Type the letter designating the required option and click ‘OK’.

8.1 Option ‘N’ (New Specimens)

Accesses the *New Specimens: Batch Header* form (Fig. 29, p. 24). See Chapter 3: New Specimens, p. #, for information about the various buttons and fields on this form.

The relevant button is

Print Labels

Clicking on this button accesses the *Print Labels* form.

Print Labels Form

Select the appropriate options in the choice fields:

Label type

If the ‘Draft labels’ option is selected, a single label is printed for each specimen. The Temporary Accession String (i.e. batch number, item number, extension and sheet number) and not the CAS is printed in the top right-hand corner of each label. Final labels may only be printed once the following 3 criteria have been met:

1. The specimens have been checked and the **Specimen Status—Checked** field on the *New Specimens* data entry form: *Other* page, has been flagged ‘Y’ (Yes).
2. The specimens have been assigned CAS values, i.e. they have been transferred to the main database, and
3. Final labels have not previously been printed for the specimens, or the **label done** flag, on the *New Specimens* data entry form: *Other* page, is set to ‘N’ (No) for each specimen.

Font size

Select the required font size.

Inclusion of coded information

Select whether coded information should be printed on labels or not.

Items

A range of items to print labels for, can be set.

Select  to preview the specimen labels for the batch, e.g. Fig. 104.

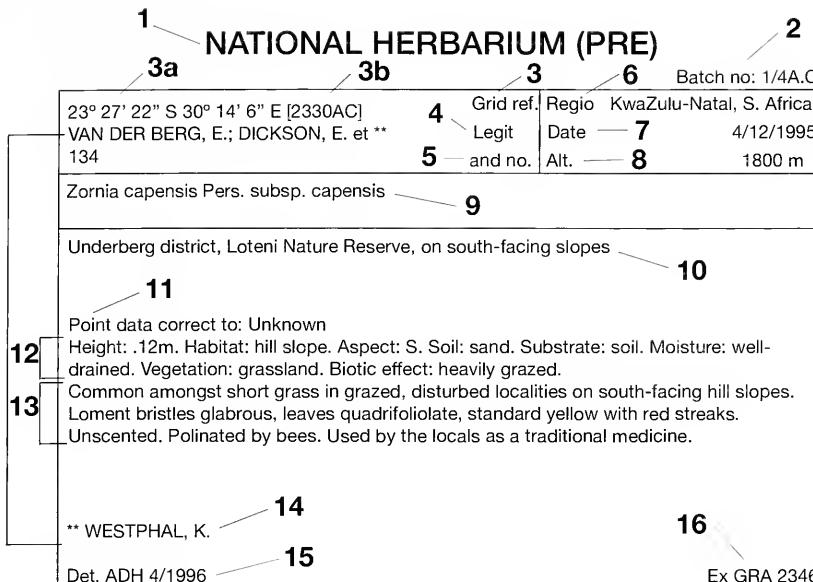


Fig. 104. Example of a Print Labels Preview. See explanation of label data components below.

Label Data Components

1. Label heading - Herbarium name and code
2. Temporary Accession String (TAS). Made up of Batch and Item numbers.
3. Point reference details
 - 3a. Longitude and latitude (deg/mins/sec NS and E/W) of collection locality
 - 3b. Quarter degree grid reference
4. Collector's name/s (Legit). If the collector's names are longer than the available label space, this is denoted by 'et **'. The remaining name/s is/are recorded at the bottom left corner of this label. See 14 below.
5. Collector's number (unique number for specimen)
6. Region - the province and/or country
7. Date - the date (day/month/year) of specimen collection
8. Altitude - the altitude of the specimen locality. In feet or metres, depending on selection
9. Taxon name and authority
10. Collection locality
11. Point data correct to - quantifies the accuracy of the point reference details.
12. Coded fields (Height, Habitat, Aspect, Soil, Substrate, Moisture, Vegetation, Biotic Effect). These fields are only included if the 'Add coded fields to labels' option is flagged 'Yes' prior to printing.
13. Notes (abundance, ecology, morphology, aroma, reproductive biology, usage)
14. Continuation of collector's name/s (See 4 above)
15. Initials (or name) of determinavit, and date on which the determination was made
16. Donating herbarium code and accession/other number



To print labels, click on  on the main toolbar.



To display the 'Print dialogue' box in which various print options may be set, click on . Select 'OK' to print.

Accesses the *Existing Specimens: Batch Header* form (Fig. 105). This allows existing specimens to be selected, copied to a new batch, viewed, and herbarium labels printed. When all the labels have been printed, the specimens can be deleted from the batch, and, this done, the batch header may be deleted (See Chapter 9: Extract Records, p. 125).

Chapter 9

Extract Records

Extract Records

Extract Records

Accesses the *Existing Specimens: Batch Header* form (Fig. 105). This allows existing specimens to be selected, copied to a new batch, viewed, and herbarium labels printed. When all the labels have been printed, the specimens can be deleted from the batch, and, this done, the batch header may be deleted.

EXISTING SPECIMENS

Batch Header

Batch no	Specimens in batch:	Date
1	43	6/15/1998

Typist: Description of batch: Existing records for printing

Buttons:

- Copy Specimens
- View Specimens
- Delete Specimens
- Print Labels
- Utilities

Navigation:

- Left/Right arrows
- Up/Down arrows
- Search icon
- Print icon

Record 1 of 33

Fig. 105. *Existing Specimens: Batch Header* form.

Existing Specimens: Batch Header form

Batch no

Click on **+** for the next available batch number.

Specimens in batch

An automatic counter, indicating the number of specimens in the batch.

Date

The current date is automatically inserted when a new batch is created.

Typist

Enter the name or initials of the person creating this batch.

Description of batch

The description "Existing records for printing" is automatically inserted.

9.1 Copy Specimens

Copy Specimens

Accesses the *Copy specimens to batch* sub-forms (Figs. 106, 107 & 108), which are used to select individual or groups of specimens to be copied to temporary batches.

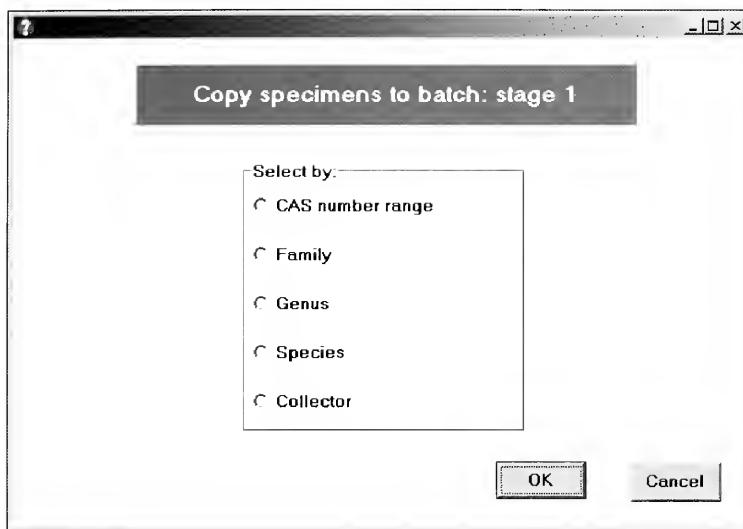


Fig. 106. *Copy specimens to batch* sub-form: Stage 1

Copy Specimens to Batch sub-form: Stage 1

Select by:

Select criteria which should be used to extract specimens to be copied to the batch.

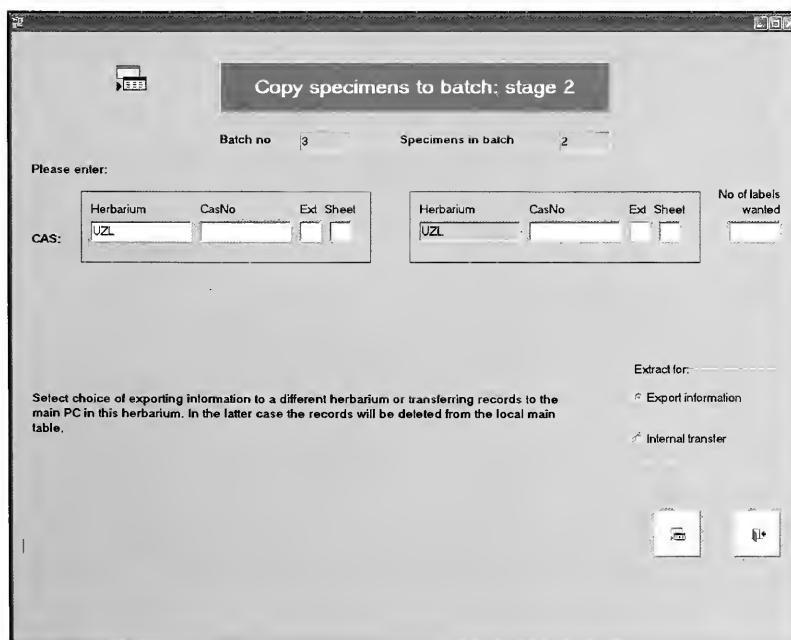


Fig. 107. *Copy specimens to batch* sub-form: Stage 2 (Selection by CAS).

This number is automatically carried over from the *Existing Specimens: Batch Header* form.

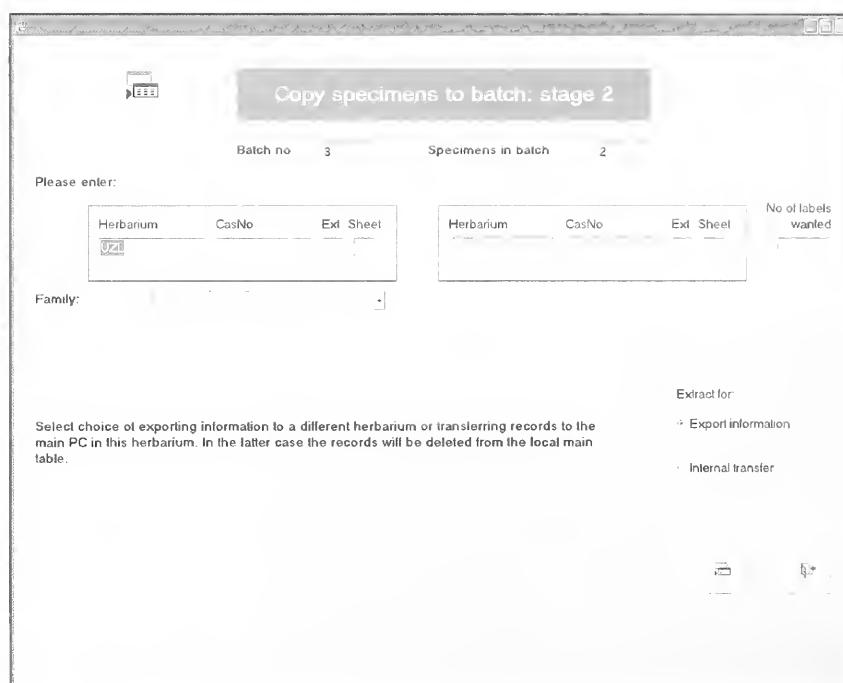
Automatically displays the number of specimens in the batch.

To indicate a range, enter the starting and ending CAS numbers.

Click in the appropriate field to tag the required option.

Click on  to copy the specimen records to the batch. Once the copy operation has been performed, a confirm copy statement appears, stating the range of specimens copied to the batch. Next, the number of specimens making up the batch will be inserted in the **Specimens in batch** field automatically.

Once the required specimens have been copied to the batch, click on  to return to the *Existing Specimens: Batch Header* form.



The screenshot shows the 'Copy specimens to batch: stage 2' sub-form. At the top, there are two status indicators: 'Batch no' with value '3' and 'Specimens in batch' with value '2'. Below this, a message says 'Please enter:' followed by two tables for specimen selection. Each table has columns for 'Herbarium', 'CasNo', 'Exd Sheet', and 'No of labels wanted'. The first table has a 'Family:' dropdown menu below it. At the bottom, there is a note about exporting to a different herbarium or transferring records to the main PC, followed by an 'Extract for' section with radio buttons for 'Export information' and 'Internal transfer'.

Fig. 108. *Copy Specimens to batch* sub-form: Stage 2 (Selection by Family).

This number is automatically carried over from the *Existing Specimens: Batch Header* form.

Specimens in batch

Automatically displays the number of specimens in the batch.

Herbarium

Only the **herbarium code** field is active, and can be changed.

Family

To enter the family name, either click in the **Family** field or on the associated down arrow. Enter the first 3-4 letters of the family name. An alphabetical list of families will appear and the first family starting with the letters entered, will be highlighted. Click on the required name to insert it into the **Family** field.

Choice section

Click in the appropriate field to tag the required option.



Click on  to copy the specimen records to the batch. Once the copy operation has been performed, a confirm copy statement appears, stating the range of specimens copied to the batch. Next, the number of specimens making up the batch will be inserted in the **Specimens in batch** field automatically.



Once the required specimens have been copied to the batch, click on  to return to the *Existing Specimens: Batch Header* form.

9.2 View Specimens

View Specimens

Accesses the *New Specimens* data entry form for the current batch header, so that the existing specimen records copied to the batch may be checked, edited or tagged (e.g. the **Specimen Status** field, or coded fields option tagged) prior to printing. See 3.1: Add Specimens, p. # for additional information.

9.3 Delete Specimens

Delete Specimens

Deletes all the specimens in the current batch. If there are specimens for which final labels have not been printed, the system displays this information, and asks whether or not the batch should still be deleted.

9.4 Print Labels

Print Labels

Accesses the *Print Labels* routine, which is used to print final specimen labels (see 8.2., p. 124).

9.5 Utilities

Utilities

Accesses the *Utilities* sub-form (Fig. 109), used to unflag or delete records in the main specimen database which have been copied to temporary batches for printing or export.

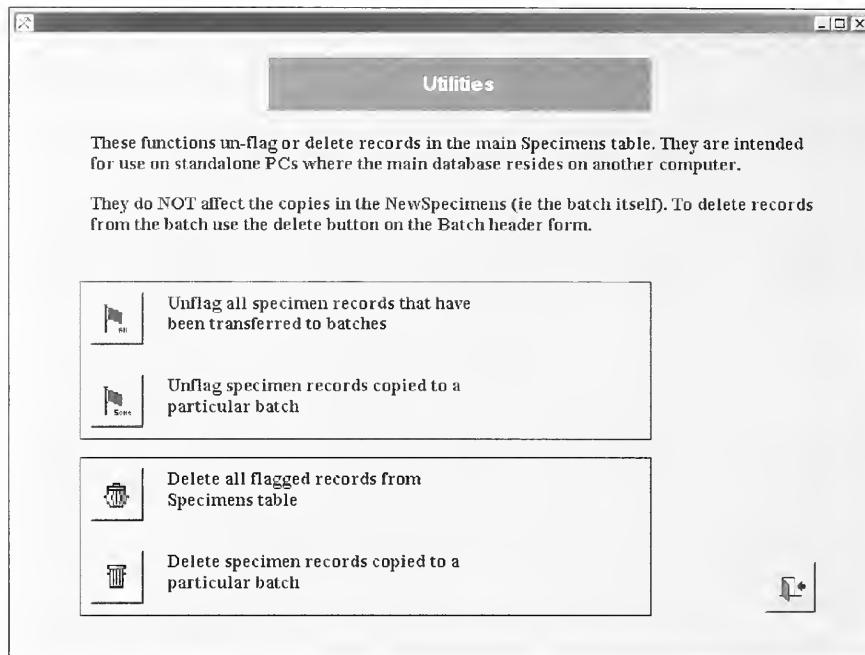


Fig. 109. Utilities sub-form.

Utilities sub-form

Select an appropriate button.

Click on  to return to the *Existing Specimens: Batch Header* form.

Click on  to return to the *Specimen Database* menu.

Chapter 10

Local Settings

Local Settings

Local Settings

Accesses the *Local Settings* form (Fig. 110), used to enter or modify the herbarium code, the specimen label header and the highest specimen accession number for the holding herbarium. These parameters may have been entered via special prompts when the Specimen Database was originally installed (See **Starting the Specimen Database**, p. 16).

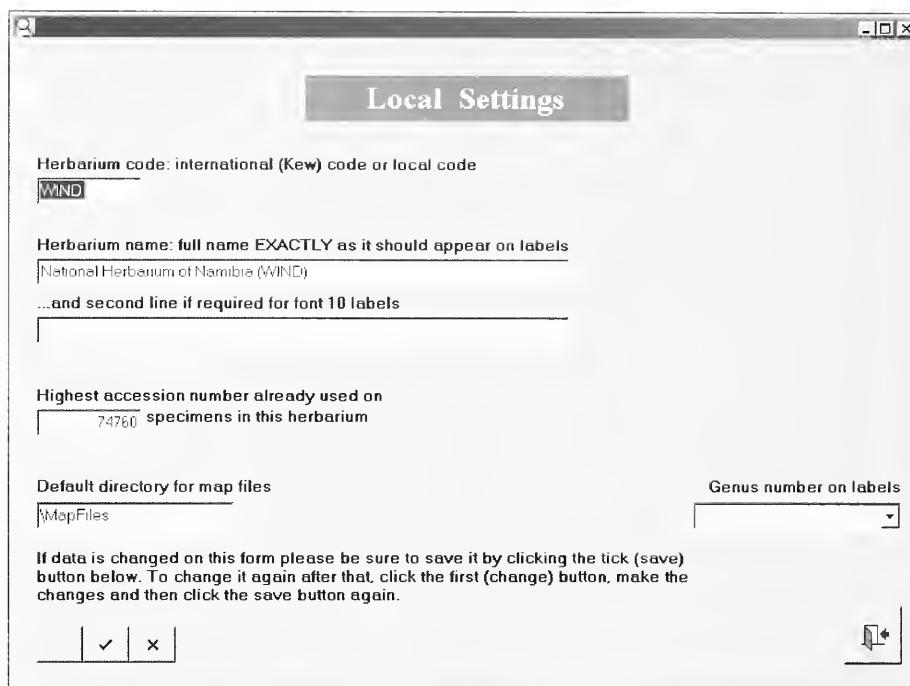


Fig. 110. Local Settings form.

Local Settings form

Herbarium code (international (Kew) or local code)

Enter the herbarium code. International codes are listed in *Index Herbariorum*. If your herbarium does not have an international code then a suitable local code must be assigned. The code should end with the dollar (\$) sign to indicate that it is a local code, e.g. SILVON\$. Please consult the PRECIS manager when designating a local code.

Herbarium name

Enter the full herbarium name followed by the herbarium code in brackets, e.g. National Herbarium (PRE). This value will appear as the header (title) on all printed labels.

Highest accession number already used on specimens in this herbarium

The highest accession number is the accession number of the most recently accessioned specimen. If the database is used to assign subsequent accession numbers, this value will be incremented by one (1) for each specimen that is added.

Default directory for map files

Enter the directory to be used to store point files created by the Mappit output report on the Reports Menu. These files are used by the Mappit software available from the SANBI's IT Section, Pretoria. The default directory is "\MAPFILES". Check to see that this directory has been created on the hard drive.

Genus number on labels

Enter the system to be used for recording genus numbers on printed specimen labels.

Options:

Computer: print computer generated genus numbers on specimen labels. These numbers are assigned sequentially to all new genera when added to the database.

Dalla Torre & Harms: print genus numbers following Dalla Torre & Harms (based on Engler 1887). This is the numbering system used in the National Herbarium, Pretoria (PRE).

None: do not print genus numbers on specimen labels.

Note: Once changes have been made, save the data and exit from the database. This is important, as the entered information is only picked up once the database is started up and initialised.

Click on  to return to the *Specimen Database* menu.

Chapter 11

Backing up the database

Backing up the database

1.1 MySQL Backup and Restore procedures

This procedure uses a special program called *SpmnBackup.exe*, developed by SANBI, to simplify the MySQL backup / restore process.

Backing up the database files

1. Ensure that the MySQL Service is running (active)
 - Check the *WinMySqlAdmin* icon (traffic light) on the Desktop toolbar at the bottom right of the screen.
 - Ensure that the green light is on 
2. Backing up the data files
 - Run the *SpmnBackup.exe* located in the *c:\program files\PRECIS* folder
 - This will display the SpmnDb “Maintenance” Menu. See Figure 111 below.

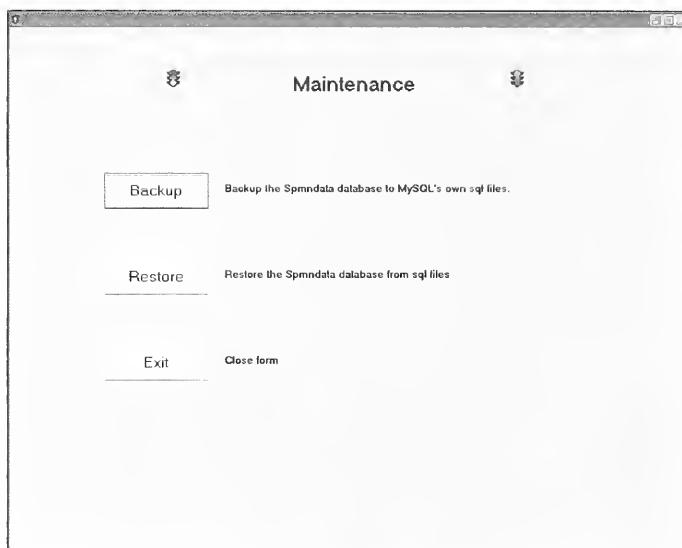


Fig. 111. PRECIS Specimen database Maintenance Menu.

- Click on the Backup button
 - This will dump the data into eight files (backup01.sql – backup08.sql) located in the *c:\mysql\backup* folder. See Figure 112 below.

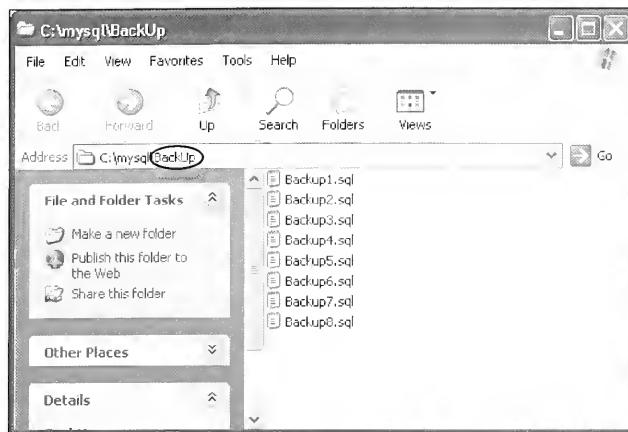


Fig. 112. Window showing contents of Backup folder with eight files created by SpmnBackup program.

Note: The data is compressed as it is written to the eight files.

- Copy the **Backup** folder (holding eight backup files) to a suitable medium (CD, ZIP disk, USB drive, etc.) that can be stored in a safe place.

11.1.2 Restore the Backed-up files

Copy the eight backup files to their original location in the **c:\mysql\backup** folder. Before the data in these files can be restored to the database, the MySQLService, if running, must be stopped and an empty database installed.

1. Shut down the MySQL Service

- Click the **WinMySqlAdmin** icon
- Click 'Win NT'
- Click 'Stop the Service'

Note: If the light of the **WinMySqlAdmin** robot has changed from Green to Red, you know that the Service has been stopped. It is not necessary to shut down the **WinMySqlAdmin** tool in order to backup the data files.

2. Install the empty database files

The empty database files are located in **c:\mysql\emptydb\data** folder. To install the empty database files:

- Rename the **c:\mysql\data** folder.
- Copy the data folder from **c:\mysql\emptydb** to **c:\mysql** to replace the previously renamed **data** folder.

3. Restart the MySQL Service

Once the empty database has been installed, it is necessary to restart the MySQL Service to restore the data from the eight backup files.

This is done as follows:

- Click the **WinMySqlAdmin** icon
- Click 'Win NT'
- Click 'Start the Service'

Note: If the light of the WinMySqlAdmin robot has changed from Red to **Green**, you know that the MySQL Service has been re-started.

4. Restore the backed-up data files

- Run the *SpmnBackup.exe* program located in the c:\program files\precis folder
- Click on the Restore button

This will insert the data from the eight backup files (backup01.sql – backup08.sql) into the empty data folder.

Note: Time to restore the database – This will take between 1.5 and 6 hours depending on the size of the database and power of the computer's processor. Because the data is compressed, the size of the restored database will be noticeably smaller than the original database that housed the same data.

1.2 Using “Copy” to backup and restore database

1.2.1 Copy/”Backup” specimen database

1. Shutting down the MySQL Service

Before the database folders and files can be backed-up, the MySQL Service, if running, must be stopped. To do this:

- Click the WinMySqlAdmin icon (Traffic light)
- Click 'Win NT'
- Click 'Stop the Service'

Note: The Service has stopped if the light of the WinMySqlAdmin robot has changed from Green to Yellow and then Red.

It is not necessary to shut down the WinMySqlAdmin tool in order to backup the data files.

2. Copying the specimen database files

The specimen database consists of a number of files stored in the C:\MySql\Data folder and subfolders. Backing-up the specimen database requires backing-up the entire 'Data' folder with subfolders.

• Copying the data files

Copy the Data folder and subfolders to a CD, USB drive, Zip Disk, Hard drive, Tape, etc.

NB: If the backup file resides on the same hard drive as the database, this should be copied to a CD for safe keeping.

3. Restarting the MySQL Service

To continue using the Specimen database, the MySQL Service must first be restarted. This is done as follows:

- Click the WinMySqlAdmin icon
- Click 'Win NT'
- Click 'Start the Service'

Note: If the light of the WinMySqlAdmin robot has changed from Red to **Green**, the MySQL Service has been re-started.

11.2.2 Copy/”Restore” specimen database

1. Shutting down the MySQL Service

Before the database folders and files can be restored, the MySQL Service, if running, must be stopped. To do this:

- Click the *WinMySQLAdmin* icon
- Click ‘*Win NT*’
- Click ‘*Stop the Service*’

Note: The Service has stopped if the light of the *WinMySQLAdmin* robot has changed from **Green** to **Red**. It is not necessary to shut down the *WinMySQLAdmin* tool in order to restore the data files.

2. Renaming the ‘Data’ folder

Before copying or restoring the data files, if possible, rename the Data folder to: C:\MySQL\Data.old, save (or *Data.old*) as a safety measure.

3. Restoring the specimen database files

The specimen database files are stored in the C:\MySQL\Data folder and subfolders and should be copied or restored from backup back to this original location.

4. Copying the data files

Copy and paste the ‘*Data*’ folder with subfolders from the storage media (CD, USB drive, Zip Disk, Hard drive, Tape, etc.) back to its original location, namely the C:\MySQL folder.

5. Restarting the MySQL Service

Once the data has been restored, it will be necessary to restart the MySQL Service.

This is done as follows:

- Click the *WinMySQLAdmin* icon
- Click ‘*Win NT*’
- Click ‘*Start the Service*’

Note: If the light of the *WinMySQLAdmin* robot has changed from **Red** to **Green**, the MySQL Service has been re-started.

11.3 What constitutes a backup

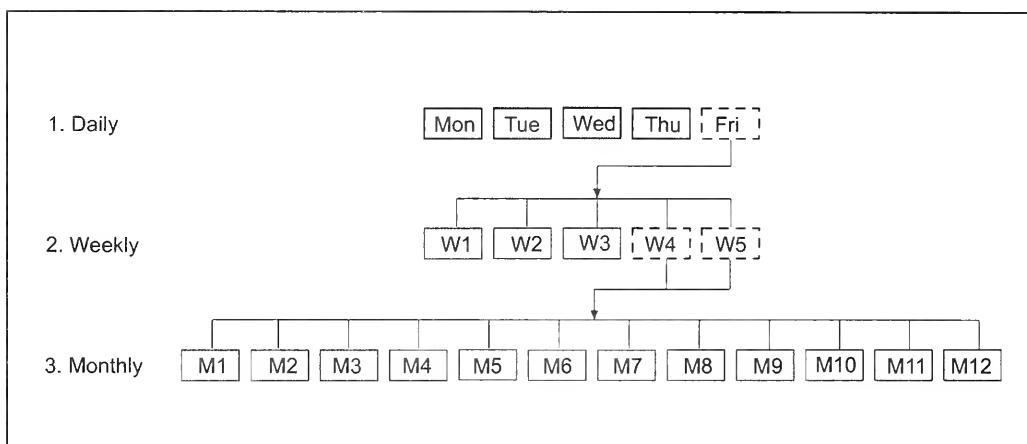
Data is backed up when it is copied to a device (hard drive, diskette or CD) other than the one on which it currently resides. (In all situations, using data compression is recommended.)

- **Hard drive:** (Not recommended) If the computer has two drives, then copy the database to the second drive. The disadvantage is that successive backups (copies), unless given different names, are made over the previous one so that there is no historical record. Loss of original and backed up data will occur as a result of theft or fire.
- **CD:** (Recommended) CDs are conventionally used for backing up data and remain a more effective option over hard drives and diskettes. They allow for easy scheduling of backups and successive backups can be stored separately on a single CD.
- **IOMEGA ZIP disks:** (Recommended) These are ideal for smaller to medium databases (up to 200 or 750 Mb) and like CDs can be stored away from the computer in a separate room or building to provide added security. Unlike IOMEGA backup, *Windows backup* can be configured to allow for multiple backups on a single disk.

2010-07-01 10:00:00, the outcome of three backup cycles below

Cycle	Importance	Storage location
1. Daily* (see 1. Daily below) Monday—Thursday Friday	Essential	Same room as database computer Different building
2. Weekly (see 2. Weekly below)	Recommended	Different building
3. Monthly (see 3. Monthly below)	Recommended	Different building

* Backup every day or every day that the content of the database is changed (records added or modified).



Backups of the database should be stored in a *secure place*** away from the computer housing the Specimen database, preferably in a different building. The location should also be reasonably accessible if the backups are ever required to restore the database.

**** Secure place—** If the backups are stored on moveable media (CDs, Zip drives, etc.) these should be placed in a lockable box (accessible only to officers responsible for backups), inside a lockable cupboard.

10.1007/s00339-006-0333-6

Daily backups: Housed in a secure place in the same room as the database computer or, preferably, in a different room a short distance away from the database computer.

Weekly backups: In a secure place in a building apart from the building housing the database computer. This also applies if backups are only done weekly and not daily as well.

Monthly backups: Same as for weekly backups.

References

References

Arnold, T.H. & Oliver, E.G.H. 1996. *MAPPIT. Geographical Mapping System. User Guide*, Version 2. National Botanical Institute, Pretoria.

Brummitt, R.K. & Powell, C.E. (eds.) 1992. *Authors of Plant Names*. Royal Botanic Gardens, Kew, Richmond.

Hollis, S. & Brummitt, R.K. 1992. *World Geographical Scheme for Recording Plant Distributions*. Plant Taxonomic Database Standards No. 2, Version 1.0. International Working Group on Taxonomic Databases for Plant Sciences, Hunt Institute for Botanical Documentation, Pittsburgh.

Holmgren, P.K., Holmgren, N.H. & Barnett, L.C. (eds.) 1990. *Index Herbariorum. The Herbaria of the World*. New York Botanic Gardens.

Appendix 1

Database Help Buttons

Locality Help Buttons

Special Help Buttons are located at the top left of the *Locality Keywords* and *Regions* forms. See Figs. 1.1 & 1.3. These Help Buttons access Help Screens, which describe the function of the buttons located on these forms.

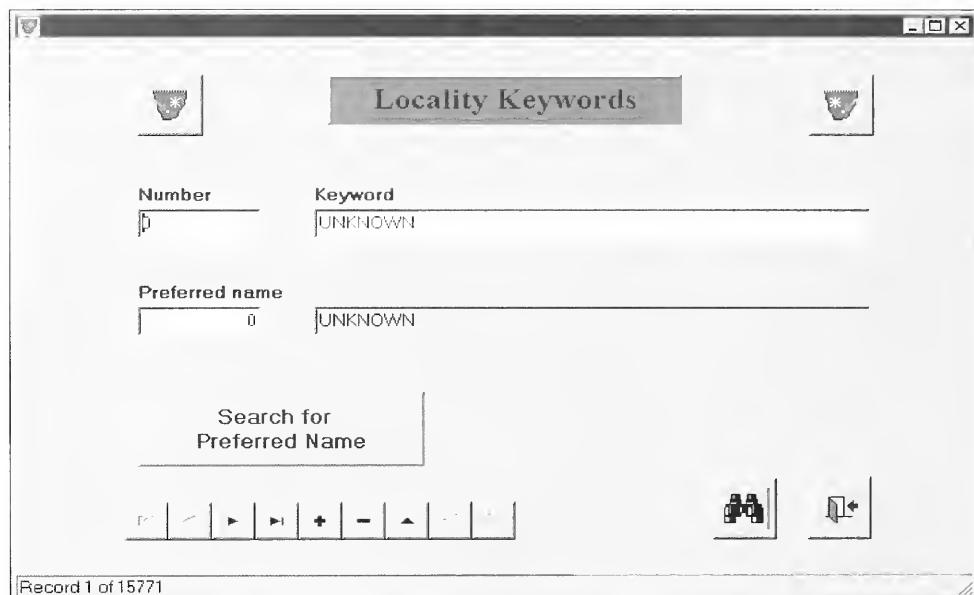


Fig 1.1 Position of the Help Button (A) on the *Locality Keywords* form.

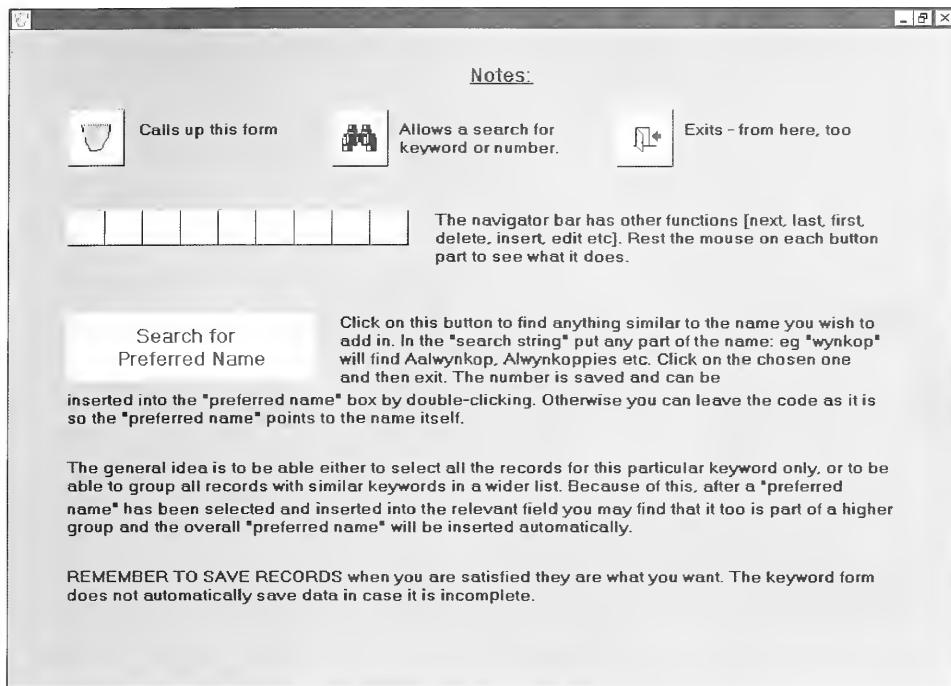


Fig. I.2. Help Screen accessed by clicking on the Locality Keywords form.



Fig. I.3. Position of the Help Button on the Regions form.

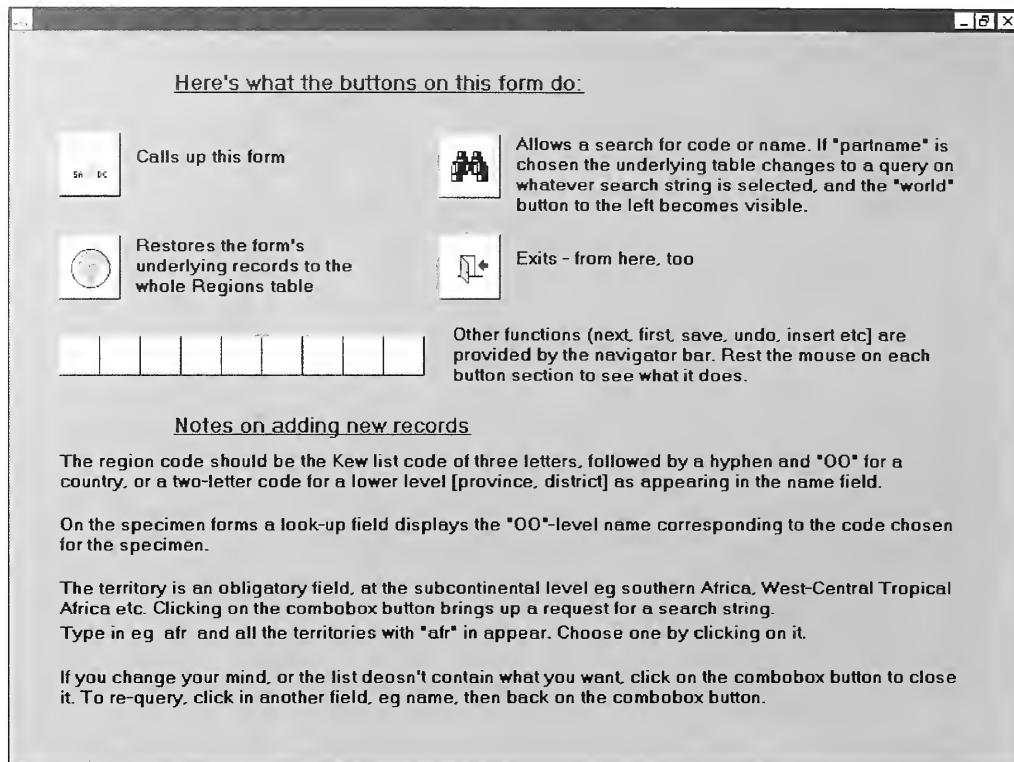


Fig. 1.4. Help Screen accessed by clicking from the Regions form.

Appendix 2

Definitions

Aspect:	The compass direction towards which a slope faces.
Habitat:	The specific kind of environment occupied by the individuals of a species. The sum total of environmental conditions of a specific place that is occupied by an organism.
Substrate:	The base or substance upon which an organism grows.
Soil:	The layers inhabited by the root systems of vegetation.
Lithology/Geology:	The underlying bedrock below soil, often protruding in places as boulders or rocky outcrops.
Moisture regime:	The amount and type of water available to the plant.
Vegetation:	The kind of plants growing in an area – determined primarily by growth form.
Biotic effect:	The effect of living organisms (e.g. animals or man) and fire on vegetation.
Occurrence (local):	Abundance of plant at site of collection.
Exposure:	Extent to which a plant is exposed to sun and shade.
Growth form:	The characteristic shape or appearance of a plant.

Appendix 3

Specimen database tables

Specimen database tables

Table	Contents
AspTable	List of aspect abbreviations
Authors	Author abbreviations of plant names, following Brummit and Powell (1992)
Batches	New Specimen batch information (e.g. number, date, description, etc.)
Biotics	List of biotic effects (e.g. garden, plantation, road side, etc.)
Collectors	List of names of plant collectors
ConfLvl	List of confidence level options for altitude and point data (e.g. centroid of farm, 0-10 m, etc.)
DetTable	List of names of determinavits
DistribFlags	List of Regional distribution flags (e.g. FSA, FTA, Africa, etc.)
Exposure	List of exposure options (e.g. full sun, shade, etc.)
Families	List of family names and authors
Fcodes	List of flowering or fruiting status options (e.g. absent, mature, etc.)
Fcolours	List of flower/fruit colour options (e.g. pink, yellow, etc.)
GenCodes	List of options for printing genus numbers on specimen labels
Genera	List of genus names, author/s and corresponding family
GrFrms	List of growth form options (e.g. climber, herb, etc.)
GridNames	List of $\frac{1}{4}^{\circ}$ grid names. (e.g. Rietfontein for grid 2120)
Habitats	List of habitat options (e.g. cliff face, hill slope, etc.)
Herbaria	List of herbaria codes (local or international, ie. according to Holmgren <i>et. al.</i> , 1990) and names
IDLevel	List of identification level options (e.g. cf., to species level only, etc.)
LabelTable	Label information (e.g. number of labels, specimen details)
Lithology	List of geology types (e.g. sandstone, granite, dolomite, etc.)
Localities	List of locality keyword options (e.g. Durban, Himeville, etc.)
Materials	List of material type options (e.g. herbarium specimen, seed, etc.)
Moistures	List of moisture regime options (e.g. seasonally waterlogged, etc.)
MSFlags	List of specimen status options (e.g. naturalized, exotid, etc.)
NewSpecimens	All new specimen information associated with a TAS

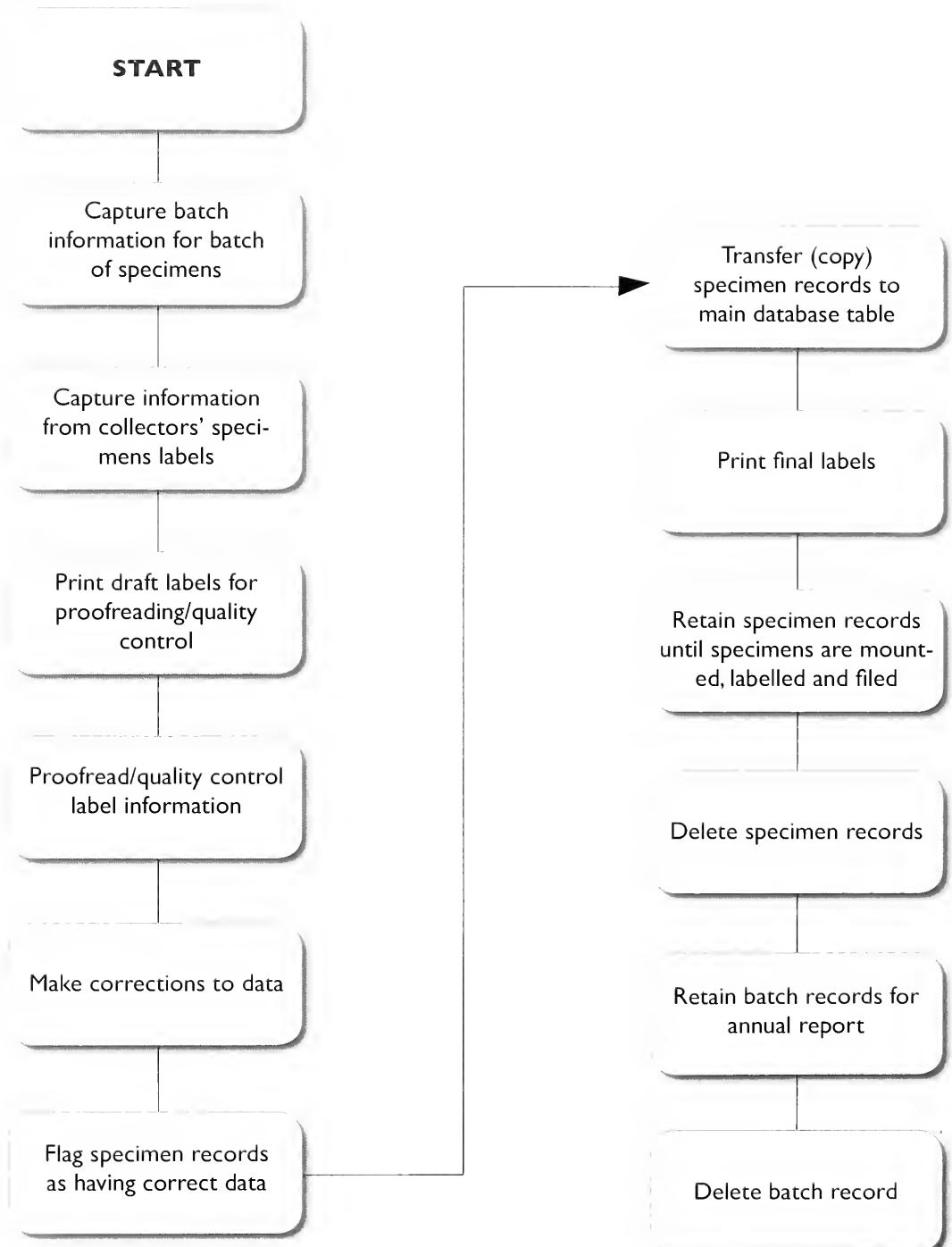
NewTemp	Table used by the system
NoGrTable	Temporary table used to store information about specimens without grids
NomenStatus	List of taxon name status options (e.g. nom. illegit., ms., etc.)
NSpmnColl	Secondary table linking New Specimens to Collectors
NSpmnDups	Secondary table linking New Specimens to Herbaria receiving duplicates
NSpmnFlrClr	Secondary table linking New Specimens to Flower colour
NSpmnFrtClr	Secondary table linking New Specimens to Fruit colour
NSpmnGrFrms	Secondary table linking New Specimens to Growth form
NspmnHab	Secondary table linking New Specimens to Habitats
NSpmnLoc	Secondary table linking New Specimens to Localities
NSpmnSpcl	Secondary table linking New Specimens to Special Collections
NSpmnTypes	Secondary table linking New Specimens to Types specimen and Plant Names
NSpmnVch	Secondary table linking New Specimens to Vouchers
NTData	Table used by the system
Occurrence	List of local occurrence options (e.g. rare, common, etc.)
One Swap	Table used by the system
OriginTable	Origin options (e.g. from wild, ex hort., etc.)
OutSubTable	Table used by the system
OutTable	Table used by the system
Regions	List of region names, codes and corresponding territory number, following Hollis and Brummitt (1992)
SoilCodes	List of soil type options (e.g. sand, black turf, etc.)
SpclColl	Collector/s associated with an existing specimen (CAS)
Species	List of taxa, author/s associated with a taxon, taxon status, etc.
Specimens	All specimen information associated with a CAS
SpmnColl	Secondary table linking Specimens to Collectors
SpmnDups	Secondary table linking Specimens to Herbaria receiving duplicates
SpmnFlrClr	Secondary table linking Specimens to Flower colour
SpmnFrtClr	Secondary table linking Specimens to Fruit colour
SpmnGrFrms	Secondary table linking Specimens to Growth form

SpmnHab	Secondary table linking Specimens to Habitats
SpmnLoc	Secondary table linking Specimens to Localities
SpmnSpcl	Secondary table linking Specimens to Special Collections
SpmnTemp	Table used by the system
SpmnTypes	Secondary table linking Specimens to Types specimen and Plant Names
SpmnVch	Secondary table linking Specimens to Vouchers
StatTable	List of explanations why the specimen cannot be identified
StData	Table used by the system
Substrates	List of substrate options (e.g. soil, termite mound, etc.)
Synonyms	List of synonyms with their current names.
TaxTable	Table used by the system
TempTable	Table used by the system
Territories	List of territories, following Hollis and Brummitt (1992) (e.g. North Africa, Antarctic, etc.)
TwoSwop	Table used by the system
TypeCodes	List of type status options (e.g. holotype, neotype, etc.)
VegCodes	List of vegetation type options (e.g. forest, grassland, etc.)
Vouchers	List of voucher options (e.g. photograph, anatomy, etc.)
Ztab	A system table storing the herbarium name, code and highest accession number of the herbarium using the Specimen Database

Appendix 4

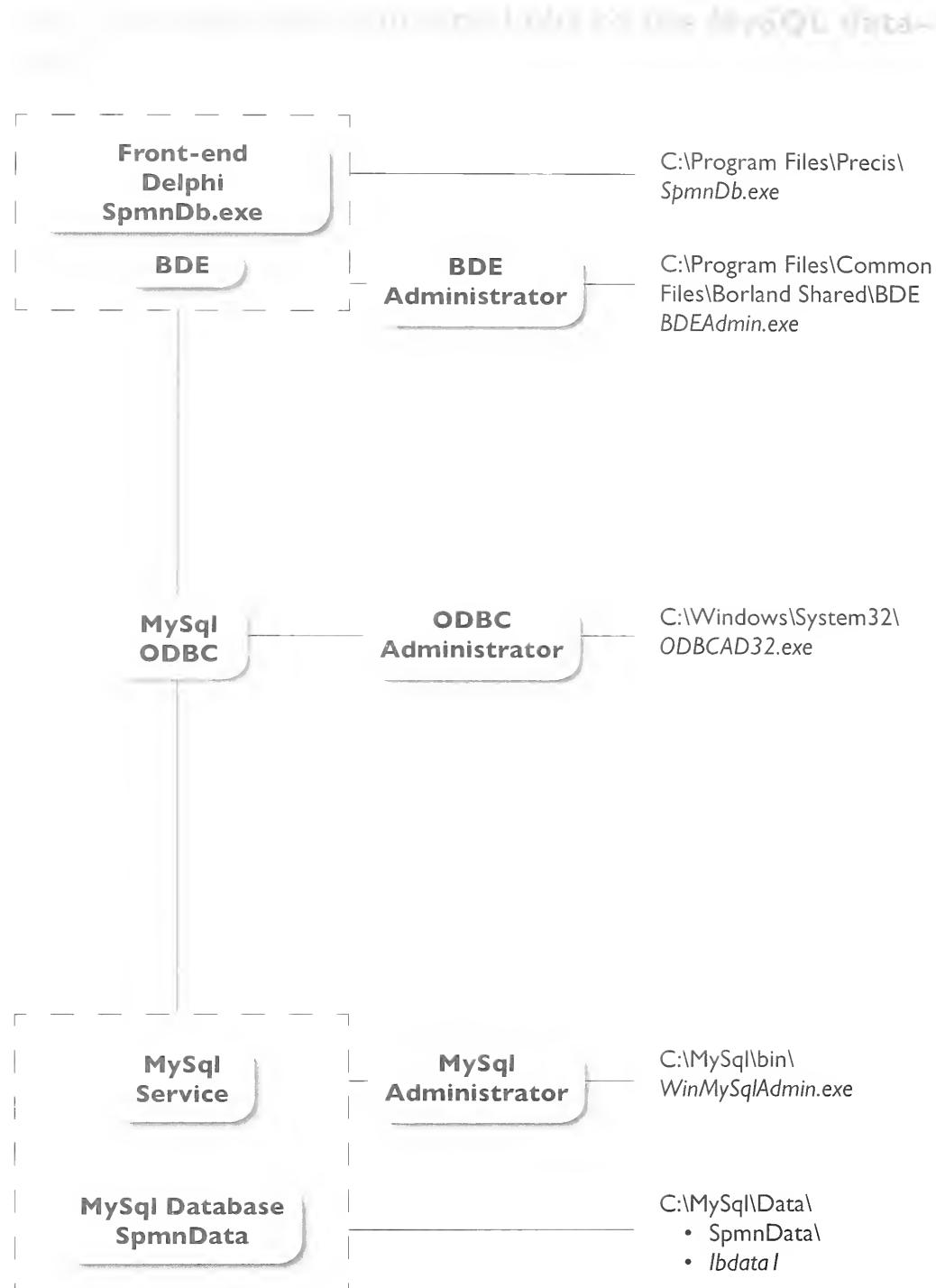
Procedure for capturing and storing
new specimen data and printing
specimen labels

Procedure for capturing and storing new specimen data and printing specimen labels



Appendix 5

How the SQuidDB front-end links to the MySQL database

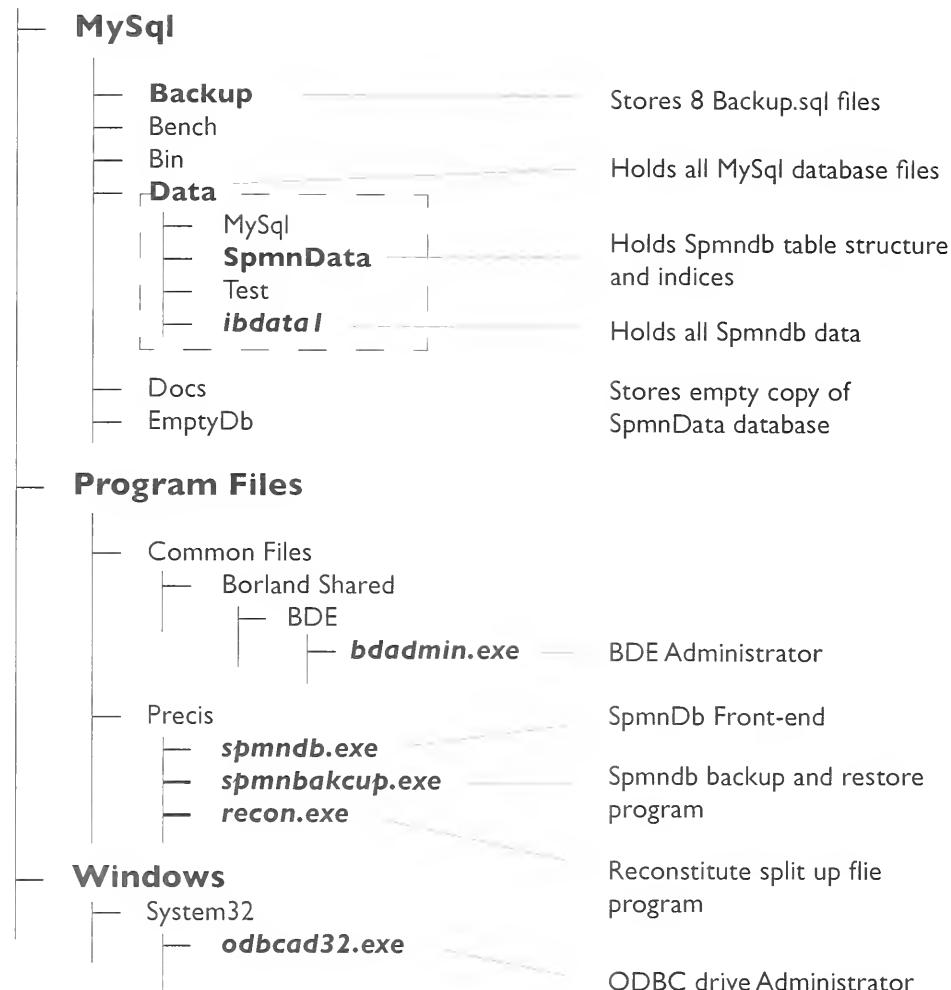


Appendix 6

Folder structure with important files and their location

Folder Structure with important files and their location

C:\



To Backup the Specimen database: copy the **Data** folder with all subfolders and files to a CD, ZIP disc, Tape or other media. OR use the **spmnbakcup.exe** program in the C:\Program Files\Precis folder to do a system backup of the **SpmnData** folder and **ibdata1** file.

Appendix 7

**Adding the WindySightAdmin tool
to the Startup and Start Programs/
SpminDb folders**

Adding the WinMySqlAdmin tool to the Startup and Start\Programs\SpmnDb folders

1. Adding to Startup folder

- a) Create and copy shortcut of WinMySqlAdmin.exe
 - Using 'My Computer' (on the Desktop) or 'Explorer' (right click Start and select Explore) to locate WinMySqlAdmin.exe in the folder C:\mysql\bin
 - Right click on file and select "Create shortcut"
 - Make a copy of the shortcut (Edit, Copy)
- b) Paste shortcut in Startup folder
 - Using 'My Computer' (on Desktop) or 'Explorer' (right click Start and select Explore) to locate and open the following Startup folder:
C:\Documents & Settings\All Users\Start Menu\ Programs\Startup
 - Use Edit / Paste to paste the shortcut to the folder

Note: The next time the computer is started or rebooted the WinMySqlAdmin.exe program will be executed automatically and the MySQL service will be started (see robot at bottom right of screen on Toolbar).

2. Add to Start\Programs\SpmnDb folder

- a) Repeat step 1a above
- b) Paste shortcut in SpmnDb folder
 - Click [Start]
 - Click [Programs]
 - Dbl click {SpmnDb} - This will open the SpmnDb folder
 - Click [Edit]
 - Click [Paste] – This will paste the shortcut into the SpmnDb folder

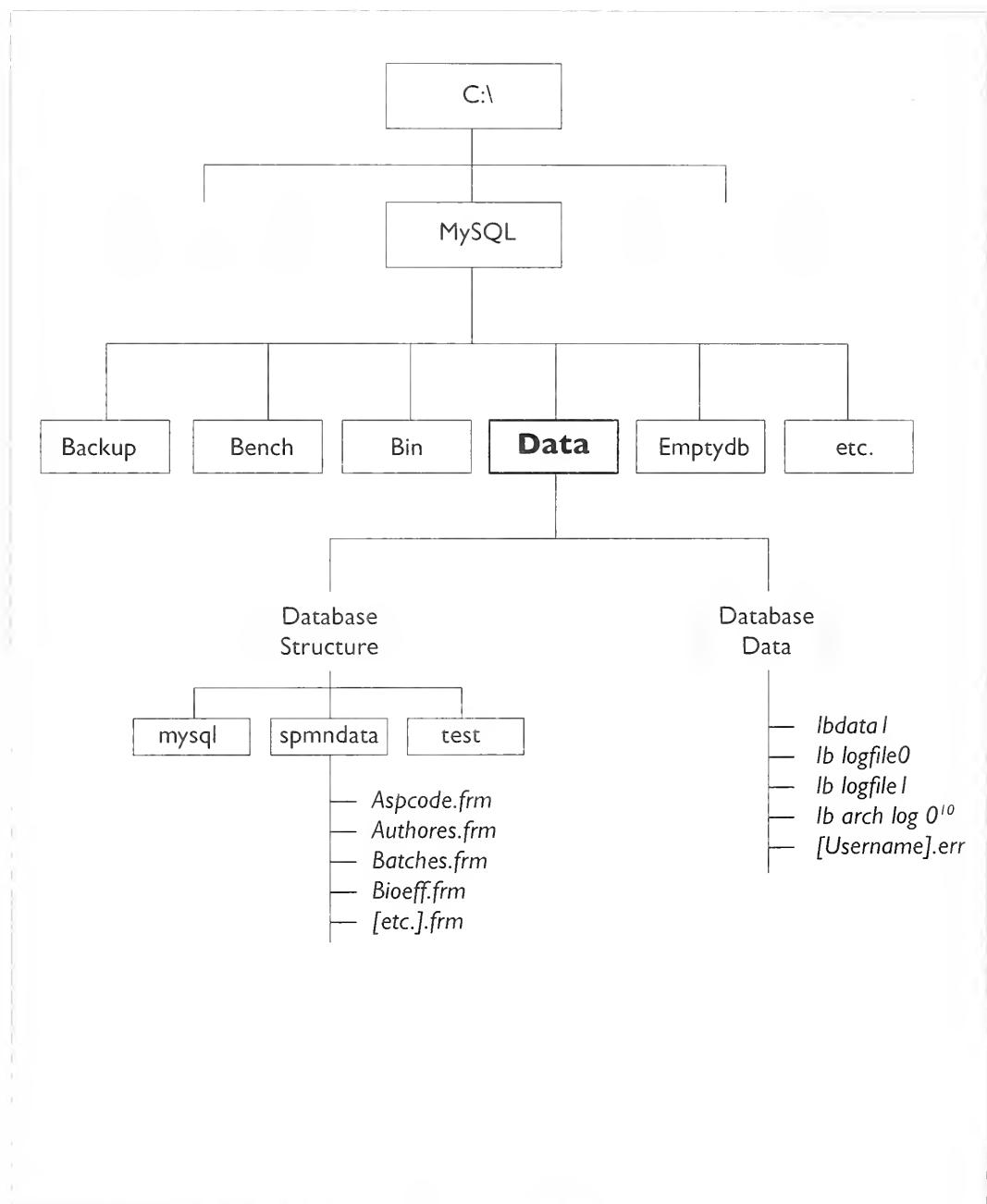
Appendix 8

Where MySQL stores the
specimen database

Where MySQL stores the specimen database

Database name: Spmndata

Database location: C:\mysql\data\



Appendix 9

Using the reconstitute (recom) program

Using the reconstitute (recon.exe) program

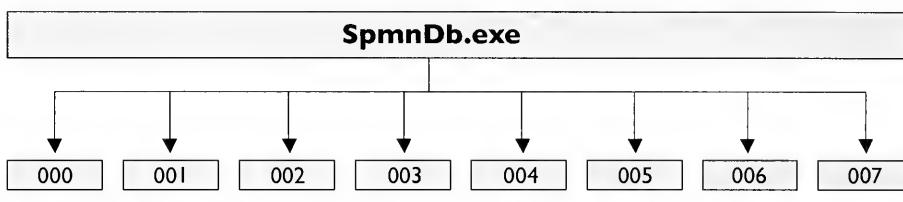
This program reconstitutes a file that has been split into a number of parts (smaller files) for the purpose of ease of transfer by e-mail.

This overcomes the problem of systems that:

- disallow users from receiving .exe files (program files) as e-mail attachments, or
- restrict the size of files that may be sent or received by e-mail

Users will receive two or more e-mails from the PRECIS Data Office.

Original file: SpmnDb.exe (4.046 Mb)



SpmnDb.000 (1 Kb)

SpmnDb.001 (578 Kb)

SpmnDb.002 (578Kb)

SpmnDb.003 (578Kb)

SpmnDb.004 (578Kb)

SpmnDb.005 (578Kb)

SpmnDb.006 (578Kb)

SpmnDb.007 (578Kb)

E-mail (1)

Attachments:

1. SpmnDb.000 (1 Kb)
2. SpmnDb.001 (578 Kb)

E-mail (2)

Attachments:

1. SpmnDb.002 (578 Kb)

E-mail (3)

Attachments:

1. SpmnDb.003 (578Kb)

E-mail (4)

Attachments:

1. SpmnDb.004 (578Kb)

E-mail (5)

Attachments:

1. SpmnDb.005 (578Kb)

E-mail (6)

Attachments:

1. SpmnDb.006 (578Kb)

E-mail (7)

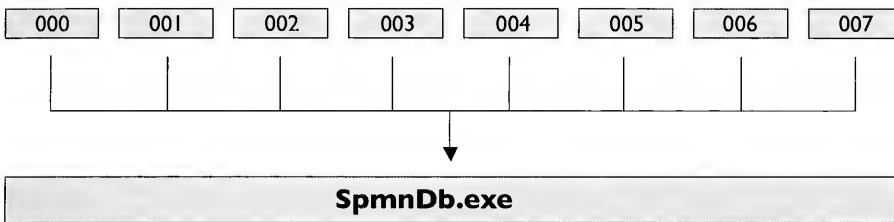
Attachments:

1. SpmnDb.007 (578Kb)

Each e-mail will contain one or more file attachments collectively totalling <1Mb in size. Each file attachment will have the same name as the original file e.g. *SpmnDb* but will have different extensions starting with *.000* and incrementing upwards (*000, 001, 002, 003*, etc.) depending on the number of component files.

Steps to reconstitute the component files:

1. Save all the e-mail attachments to a single folder. Preferably an empty folder.
2. Run the *ReCon.exe* program located in C:\Program Files\Precis.
>> This will open the “Reconstitute a file” menu.
3. Click [Find file] to open the “Open” (file) dialog box.
4. In the “Look in” field, specify the directory path containing the saved attachment files.
5. Select the file with the extension .000
6. Click [Open]
>> This will insert the directory, original and extension name into three fields on the “Reconstitute a file” form.
7. Click [GO]
>> This will reconstitute the files into the single original file.



>> If the reconstitution process is successful a confirmation box will appear.

8. Click [OK]

Note: The reconstituted file will be located in the same directory to which the attachments were saved.

9. Open (Double click) the reconstituted file to ensure that it functions correctly.
10. Copy the reconstituted file to the appropriate directory for use.

Appendix 10

Creating a Microsoft Access SymmetraX database

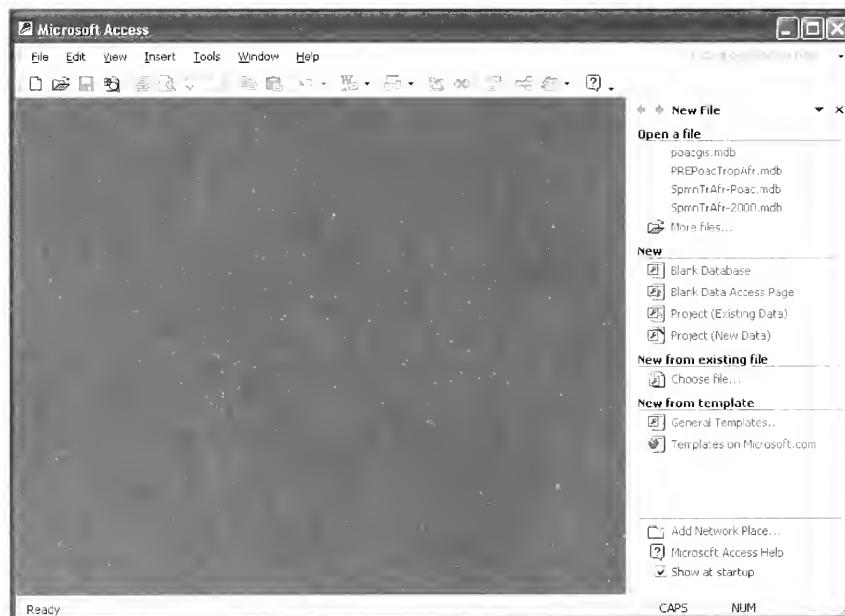
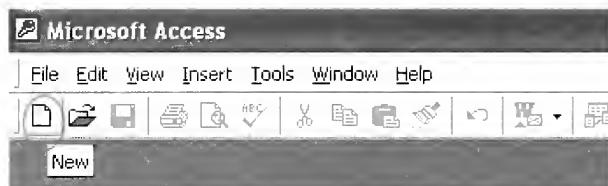


Creating a MS-Access SpmnReports database

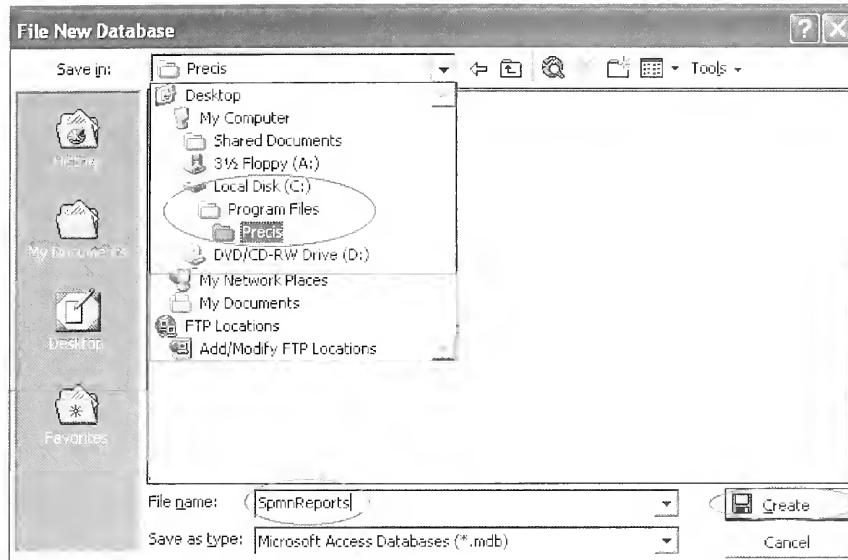
Use this procedure to create an MS-Access database (SpmnReports.mdb) that will act as a front-end database to the MySQL PRECIS Specimen database. This will allow information to be extracted from the Specimen database using the MS-Access Query and Reporting tools.

I. Create SpmnReports database in PRECIS folder

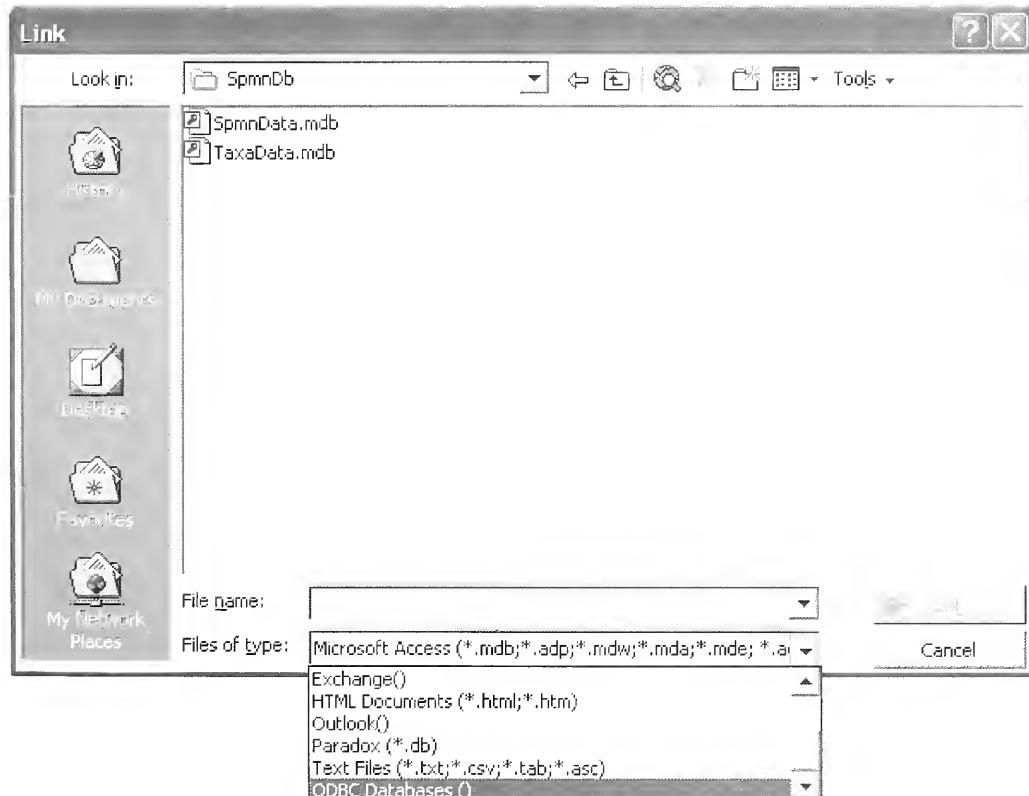
1. Open MS-Access
2. Click on [Blank Database] - (on right-hand side under “new”)



- This opens the “File New Database” dialog box

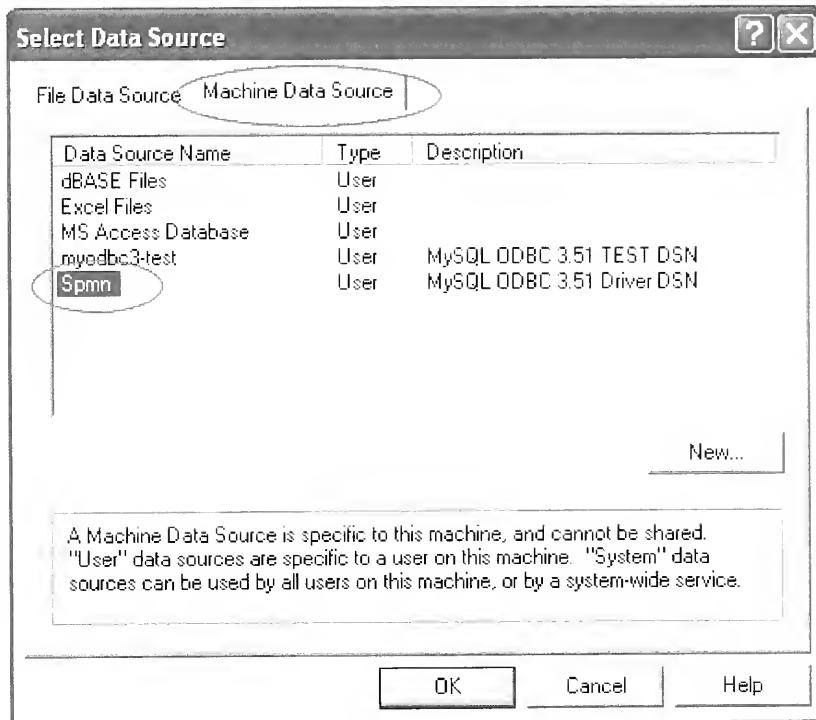


3. Enter the following:
 - "Save in" field - C:\Program Files\PRECIS
 - "File name" field - SpmnReports
4. Click on [Create]
>> This will open the "Link" dialog box

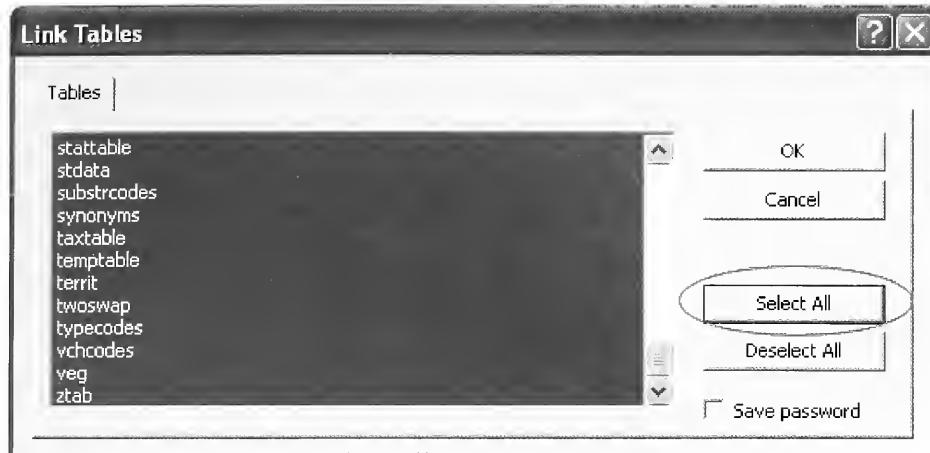


2. Link SpmnReports database to MySQL SpmnData database and link tables

1. Click on [File]
2. Click on [Get External Data]
3. Click on [Link Tables]
 >> This will open the "Link" dialog box
4. Enter the following:
 - "Look in" field - C:\SpmnReports
 - "Files of Type" field - ODBC Database (Scroll down in the field to select an option)
 >> This will open the "Select Data Source" dialog box



5. Select the "Machine Data Source" tab
6. Select Data Source name "Spmn"
7. Click [OK]
 >> This will open the "Link Tables" dialog box



>> A list of tables in the MySQL Spmn database will be displayed

8. Click [Select All]
9. Click [OK]
>> For ±5 tables the “Select Unique Record Identifier” dialog box will appear, displaying a list of fields in that table
10. Click [OK]
>> At the end of this process, all SpmnReports database files will be linked to all the tables in the MySQL SpmnData database. This is indicated by an arrow and globe appearing to the left of each table name.

Note: The data remains in the MySql SpmnData database.

The Query and Reports functions of the new Access SpmnReports database can now be used to generate selected outputs using the data in the MySQL SpmnData database.

About SABONET

This publication is a product of the Southern African Botanical Diversity Network (SABONET), a programme aimed at strengthening the level of botanical expertise, expanding and improving herbarium and botanic garden collections, and fostering closer collaborative links among botanists in the southern African subcontinent.

The main objective of SABONET is to develop a strong core of professional botanists, taxonomists, horticulturists, and plant diversity specialists within the ten countries of southern Africa (Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia, and Zimbabwe). This core group will be competent to inventory, monitor, evaluate, and conserve the botanical diversity of the region in the face of specific development challenges, and to respond to the technical and scientific needs of the Convention on Biological Diversity.

To enhance the human resource capacity and infrastructure available in the region, SABONET offers training courses, workshops, and collaborative expeditions in under-collected areas. The programme produces a newsletter, SABONET News, and a series of occasional publications, the Southern African Botanical Diversity Network Report Series, of which this publication is part.

SABONET is co-funded by:

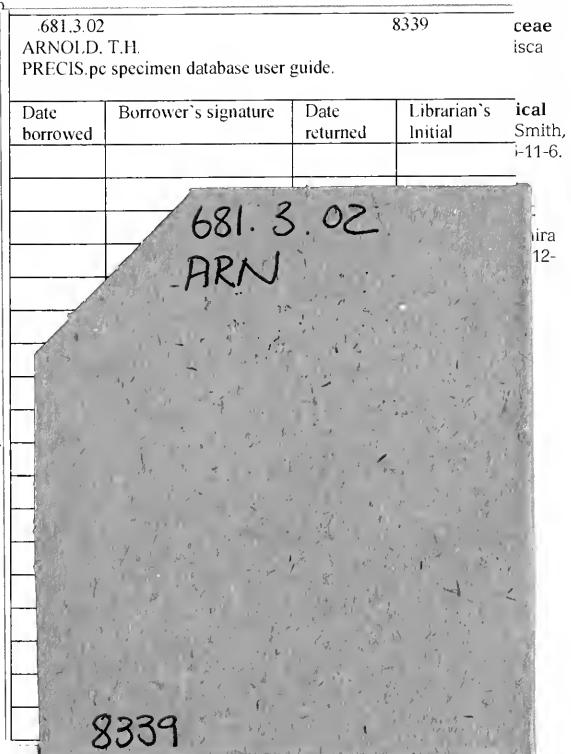
- The United States Agency for International Development (USAID/World Conservation Union—Regional Office for southern Africa (IUCN-ROSA)
- The Global Environment Facility (GEF)/United Nations Development Programme (UNDP)

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